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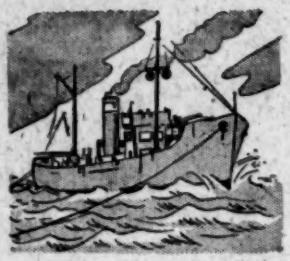

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HAEMOGLOBINOMETRY AND THE USE OF THE HAEMATOCRIT

A REPORT TO THE TRAUMATIC SHOCK COMMITTEE OF THE MEDICAL RESEARCH COUNCIL

[*The Committee on Traumatic Shock, appointed by the Medical Research Council, recently nominated a Sub-committee on Analytical Methods to advise, among other things, on methods for estimating haemoglobin and on the use of the haematocrit. The Subcommittee was asked to consider the estimation of haemoglobin both from the point of view of accurate haemoglobinometry, and from that of the standardization of one of the rapid methods commonly employed for clinical use. In the report which follows these two aspects of the problem are dealt with under separate headings.*]

I. THE PRESENT STATE OF UNCERTAINTY IN ACCURATE HAEMOGLOBINOMETRY

A. Haemoglobin Chemistry

To make clear the difficulties of accurate haemoglobin estimation a short statement of what is at present known about haemoglobin chemistry is necessary.

In the venous blood of normal men haemoglobin exists mainly in two forms—oxyhaemoglobin (O_2-Hb) and reduced haemoglobin (Hb). The ferrous iron of Hb and O_2-Hb may be oxidized *in vivo* and *in vitro* to ferric iron, to form methaemoglobin (met-Hb) (Conant and Pappenheimer, 1932; Conant, 1933). It is probable that small quantities of met-Hb (not infrequently 2 to 3% and occasionally as much as 10% of the total haemoglobin) also exist in the blood of some normal persons (Ammundsen, 1941). Carbon monoxide forms an additive compound with haemoglobin, for which it has about 210 times the affinity of oxygen. Small quantities (e.g., 1 to 3%) of carboxyhaemoglobin (CO-Hb) may be formed in the bloods of normal men exposed to very small concentrations of CO—e.g., city dwellers and smokers. CO-Hb and met-Hb cannot carry oxygen to the tissues, but can be transformed relatively easily into Hb in the body. It is possible that small quantities of other forms of "inactive" haemoglobin (i.e., haemoglobin which does not transport oxygen) exist in normal blood.

In the blood of men suffering from certain poisons and intoxications larger amounts of "inactive" haemoglobin may be present. For instance, in those poisoned with CO 20 to 50% of the total haemoglobin may be CO-Hb (Peters and van Slyke, 1931a). During treatment with certain drugs (e.g., phenacetin, sulphanilamide) appreciable quantities of met-Hb and sulphaemoglobin (S-Hb) may be formed. The bloods of patients given large doses of sulphanilamide not uncommonly show 10% met-Hb, rarely 10% of S-Hb (Harris and Michel, 1939). Very occasionally as much as 30% of the total haemoglobin may be met-Hb. S-Hb, once formed, apparently cannot be changed into "active" haemoglobin *in vivo*; its constitution is unknown. When red cells are ruptured and haemoglobin spills into the plasma methaemalbumin is formed (e.g., in blackwater fever and occasionally after sulphonamide treatment) (Fairley, 1941). It is possible that other forms of "inactive" haemoglobin exist in the bloods of patients.

If haemoglobin is treated with acid or alkali it is split into a brown pigment, haematin, and the protein globin. This brown pigment can be obtained crystalline in the form of its chloride, haemin, and is an iron porphyrin complex (Peters and van Slyke, 1931b). If dissolved in N/10 NaOH and treated with a strong reducing agent it combines with various organic bases to form a series of compounds, haemochromogens, with characteristic absorption spectra. These compounds are unstable, and exist only so long as the action of the reducing agent persists.

B. Methods Employed for Haemoglobin Estimation

(*a*) *Methods Involving Gas Analysis.*—In these the capacities of whole blood for various gases are taken as a measure of haemoglobin. Since methods of purifying, particularly drying, cause a progressive diminution in the gas capacity of haemoglobin, the true gas capacity of unit weight of pure haemoglobin has never been determined, only inferred.

1. The oxygen capacity of the blood may be determined with considerable accuracy by van Slyke's manometric method (Peters and van Slyke, 1932b) and with less accuracy by Haldane's method (Haldane, 1899). This measures only haemoglobin that combines loosely with oxygen.

2. By the former method the CO capacity of blood may be determined with accuracy (Peters and van Slyke, 1932c). This is a measure of Hb, O_2-Hb, and CO-Hb. If the blood is first reduced with sodium hydrosulphite ($Na_2S_2O_4$) and then immediately gassed with CO, met-Hb is transformed into CO-Hb, and is thus also estimated (Peters and van Slyke, 1932d). S-Hb cannot, however, be turned into CO-Hb.

The manometric methods in experienced hands give accurate highly reproducible results, but are not suitable for general use.

(*b*) *Colorimetric Methods.*—All accurate chemical colorimetric estimations are based on matching by eye the colours of sample and standard solutions viewed simultaneously on a photometer head. Errors may arise from inaccurate preparation of solutions, faulty design or use of instrument, or an unsuitable condition of the analyst's eye (Walsh, 1926; Guild, 1932). If such errors are controlled the limit of accuracy depends on the goodness of match of sample and standard colours. All colorimetric estimations need careful checking by some other method of estimation.

In colorimetric estimation of haemoglobin uncertainty arises, first, because it is difficult to be sure that the colours of either sample or standard solutions are those of one form of haemoglobin only. This is best illustrated by an example. In Palmer's method (Palmer, 1918) the colour of a standard solution of CO-Hb is matched with that of a standard dilution of whole blood gassed with CO. If either standard or sample solution contains appreciable quantities of met- or S-Hb uncertainty arises. For the presence of these compounds may alter the colours of such solutions, the matching of such colours may become less certain, and the significance of the match requires to be assessed before accuracy of estimation can be derived from it. Any substances other than haemoglobin which add colour to the dilutions of whole blood used in colorimetric haemoglobin estimations similarly cause uncertainty. For instance, it is claimed that substances in plasma add to the

brown colour obtained when sheep's blood is diluted with N/10 HCl (Wu, 1922; Conant and Pappenheimer, 1932).

The second cause of uncertainty in colorimetric estimations of haemoglobin is the difficulty of obtaining standard solutions of sufficient permanence. Because of the complexity of the absorption spectra of haemoglobin and its derivatives (Newcomer, 1919; Drabkin and Austin, 1935) no artificial standard is satisfactory for accurate matching. The most satisfactory form of standard so far described is a dilution of whole blood thoroughly gassed with CO. (See Section II B.)

The following haemoglobin compounds and derivatives have been used in the "accurate" colorimetric estimation of haemoglobin.

Hb Compound Used	Authors	Comment
Carboxy-haemoglobin	Haldane (1901) Palmer (1918)	Good colour. Most permanent of known Hb compounds, hence good standard. 100% for Haldane's haemoglobinometer, recently standardized. Hb, O_2-Hb, and CO-Hb of blood all changed to CO-Hb. If blood first reduced with $Na_2S_4O_4$, met-Hb also to CO-Hb Requires CO gas
Cyan-methaemoglobin	Stadie (1920)	Fairly good colour. Standards keep fairly well but require standardizing by some other method. Hb, O_2-Hb, CO-Hb, and met-Hb all transformed to cyan-met-Hb Requires KCN solution
Acid haematin	Sahli (1931) Newcomer (1919)	Poor colour, taking some hours to develop fully. Standards usually artificial, often unsatisfactory, and require independent standardization. Simplest of methods Substances in plasma may add to colour. Colour probably related to total haemoglobin
Alkali haematin	Wu (1922) Clegg and King (1942)	Poor colour, better by photometric match. Permanent standard of haemin crystals. All Hb compounds, including S-Hb, are turned into alkali haematin. Simple Recent work (Clegg and King, 1942) has shown this method to have considerable promise; it may eventually prove more satisfactory than the Sahli method
Pyridine haemochromogen Other haemochromogens	Rimington (1942) Deutsch (1934)	Fairly good colour, better by photometric match. Permanent standard of haemin crystals. All haemoglobin compounds changed to haemochromogens Smell of pyridine very unpleasant. All methods require solid $Na_2S_2O_4$, and difficult to be certain if this is effecting complete reduction of haematin

As noted above, all colorimetric estimations need careful checking by some other method. Because of the complexity of haemoglobin chemistry, colorimetric estimations of haemoglobin need doubly careful checking.

(*c*) *Photometric Estimations.*—The basis of all chemical photometric estimation is the matching by the eye of the brightness of two nearly identically coloured fields on a photometer head (Walsh, 1926; Guild, 1932). From this matching the quantity of light of a narrow spectral band that is highly absorbed by the sample solution is estimated. By an independent method of estimation this quantity is related to the concentration of the substance in the sample solution. This method is capable of giving results of a higher reproducibility than many colorimetric estimations. Once checked by an independent method it does not require a standard solution of the sample substance. A high reproducibility of result must not, however, be confused with a high accuracy of result.

In photometric estimations of haemoglobin compounds, apart from errors in solutions, instrument, and in the eye of the analyst, there are two sources of uncertainty. First, there is the difficulty of relating the light absorptions of solutions of whole blood to absolute quantities of haemoglobin. For, supposing the latter be determined (some of the difficulties in this determination have been outlined), unless the whole-blood solutions contain only one form of haemoglobin error may arise. Different haemoglobin compounds have different absorption spectra (Drabkin and Austin, 1935), and thus if there is more than one form of haemoglobin present the total light absorption may not be directly related either to total haemoglobin present or to the amount of the predominant form of haemoglobin. Secondly, any substance that absorbs light of the spectral band used (e.g., other pigments, slight turbidity, slight dirtiness of glass cells) will be estimated as haemoglobin. It may be noted that colorimetric estimations, though often less reproducible than photometric estimations, have the advantage that the eye sees changes of colour from the presence of other pigments and haze from the presence of turbidity.

Hence photometric measurements require considerable care and very careful independent checking to yield accurate results. All the haemoglobin compounds listed under colorimetric methods may be estimated photometrically.

(*d*) *Photo-electric Methods.*—These again measure or attempt to measure the amount of light of a narrow spectral band absorbed by solutions of pigment, and are subject to the same difficulties as are inherent in photometric measurements. Furthermore, these measurements are dependent on the electrical properties of the photo-electric cells, the design of the electrical circuit of the photo-electric photometer, and the constancy of the light source (Muller, 1939). Precautions must therefore be taken to limit uncertainties from these causes. Again the only certain way is accurate checking by some independent method.

(*e*) *Iron Estimations.*—In the opinion of this Subcommittee the best available form of check on methods of total haemoglobin estimations is the determination of the iron content of centrifuged solutions of well-washed lysed red cells from defibrinated normal human blood and the relation of this to values obtained by colorimetric or photometric methods. Because of the progressive loss of gas capacity with purification it is difficult to relate this latter or the colour of gas-Hb compounds to the iron content of purified haemoglobin. The Subcommittee prefers the method of titration of ferric iron with titanous sulphate (Klumpp, 1934) to any of the micro-colorimetric methods which have been proposed. Estimations of haemoglobin iron are not without difficulty. Scrupulous precautions to avoid iron contamination from reagents and apparatus must be taken. Since plasma contains small amounts of iron the removal of this must be as complete as possible.

C. Summary

From the foregoing discussion it can be seen that in some of the most commonly used methods of haemoglobin estimation there is uncertainty in what is accurately measured.

Clinically it may be held desirable to know in a patient: (1) the oxygen capacity, (2) the potential oxygen capacity, or (3) the total haemoglobin. The first can only be determined by oxygen capacity estimations. The second at present can only be determined with certainty by the CO capacity of blood first reduced with $Na_2S_2O_4$. The third can only be determined by careful iron estimations. Often there may be little difference between (1), (2), and (3). It is considered that an accurate estimation of (3) would be most practicable and useful in haematology.

II. RECOMMENDATIONS OF STANDARD METHODS FOR CLINICAL DETERMINATION OF HAEMOGLOBIN

Although the conclusion of the preceding section of this report is that there remain fundamental uncertainties which make the accurate determination of haemoglobin impossible at the present time, it is nevertheless thought desirable to suggest certain simple measures of standardization which can be applied to the clinical methods in common use. If the suggestions contained in this section of the report were generally adopted it would at least be possible to compare the results obtained by different workers with a degree of confidence which is certainly not felt at present.

A. Site and Method for obtaining Blood Samples for Estimation

In the opinion of the Subcommittee the best site for taking blood for haemoglobin or R.B.C. volume estimation is a vein, preferably of a warm arm. It is known that blood taken simultaneously from two arm veins may not always have the same haemoglobin content. Therefore, where possible, repeated samples should be taken from the same vein under the same conditions. Blood should be withdrawn with no more than

momentary stasis. If skin-prick blood must be used, ear puncture is recommended. The skin of the ear must be perfectly clean and dry. Minute quantities of fluid—e.g., sweat—may cause serious error when 0.02 ml. of blood is pipetted.

B. The Haldane-Gowers Haemoglobinometer

The Subcommittee recommends the Haldane-Gowers haemoglobinometer (Haldane, 1901) for routine haemoglobin measurements. In this instrument 0.02 ml. of blood is gassed with CO and diluted with 0.4% ammonia solution (0.4 ml. liq. ammon. fort. per 100 ml.) (Krogh: Newcomer, 1919) in a standard form of dilution tube till its colour matches that of a standard CO-Hb solution. The amount of dilution is directly proportional to the haemoglobin content.

This instrument has recently been investigated and standardized by a committee formed by the British Standards Institution in conjunction with this Subcommittee, and it is this standard form, B.S. No. 1079–1942 haemoglobinometers (Haldane type), that is recommended. The forms of pipette, dilution tube, and colour tube have been accurately defined. The permissible tolerances on 0.02-ml. pipettes are ±1.5% of marked capacity, on dilution tubes a maximum volumetric error not greater than 1.5% of haemoglobin, on colour standards not more than ±2% about the defined 100% colour. These limits ensure very much greater uniformity than has previously been attained in commercial instruments. The National Physical Laboratory will test pipettes, dilution tubes, and colour standards for conformity with this specification, and will measure the volumes of 0.02-ml. pipettes and the percentage value of the colour standards to the nearest 1%.

Any colour can be matched by mixing varying quantities of red, green, and blue. With suitable precautions it is possible, therefore, to define any colour on a trichromatic scale. The 100% CO-Hb colour accepted for the standard form of instrument has been so defined. The definition was based on measurements made by the N.P.L. on 6 standard glass tubes containing 1 in 100 dilutions of "normal" blood gassed with CO, the oxygen capacity of which before dilution was found by Haldane's method (Haldane, 1899) to be 18.5 volumes %. These standard tubes were prepared by Prof. G. P. Wright. Two ml. of blood freshly drawn from a fasting man was diluted approximately 1 in 100 with distilled water, placed in a 500-ml. glass-stoppered bottle, and copiously gassed with CO prepared from sulphuric and formic acids. A few hours later the haemoglobin solution was again copiously gassed, the object being to displace from the bottle all gases other than CO. The bottle was tightly stoppered and kept in a refrigerator for several weeks. During this time a deposit slowly formed. Two-ml. quantities of the clear supernatant solution were then transferred to standard glass tubes, and again thoroughly gassed with CO. The tubes were immediately sealed. Measurements made by the N.P.L. on these standard solutions show that they suffered a change equivalent to less than 2% of Hb in the last 4 years. Thus weak solutions of CO-Hb can be prepared that are relatively permanent (Donaldson, Harding, and Wright, 1943).

With the usual form of Haldane-Gowers haemoglobinometer a colour difference of 2% haemoglobin on the Haldane scale is just appreciable. This may be taken to be the limit of the method's "accuracy." The Subcommittee recommends this method for the reasons given above and because it finds that the colour of CO-Hb is easier to match accurately than the colour of any other form of haemoglobin used in routine clinical haemoglobinometry. Moreover, the N.P.L. has computed from spectrophotometric data that a mixture of 90% CO-Hb and 10% met-Hb in weak ammonia is closely matched by a standard of 100% CO-Hb in spite of the difference in tint.

For further information on this method and a statement of the uncertainties in it, see Section I.

C. The Present Supply of Apparatus

Accurate 0.02-ml. pipettes and dilution tubes conforming to the specifications of the British Standards Institution* can now be obtained commercially. The supply of commercial CO-Hb standards is less satisfactory, owing to lack of conformity with the defined colour tolerance and the impermanence. The reasons for these defects are being studied, and it is hoped that means for correcting them may be found. It is therefore recommended that when standard colour tubes are purchased it should always be stipulated that the tubes supplied must have been tested at the National Physical Laboratory and found to be in satisfactory agreement with the colour standard. This will ensure initial conformity with the standard. Tubes should be kept in the dark when not in use, and several tubes, preferably of different ages, should be kept and compared with each other from time to time. Should any noticeable differences in colour develop, the tubes should be submitted to the N.P.L. for re-examination; in any event it is desirable that they should be rechecked after six weeks and rejected if substantial change has occurred. Some workers may find it convenient to prepare their own standards according to the method given in the preceding subsection of this report. Such tubes should also be submitted to the N.P.L. for checking before being put into use.

The saturation of the solution of haemoglobin with carbon monoxide may be carried out with ordinary coal-gas; it is preferable, however, to use pure carbon monoxide, which is available in cylinders or can be easily prepared (Peters and van Slyke, 1932a).

D. Note on the Definition of the 100% Haemoglobin Standard

Many definitions have been made in the past, some related to oxygen capacity measurements by Haldane's or van Slyke's methods, others related to the colours developed by standard dilutions of whole blood. There has been no uniformity in the definitions (see table in Clegg and Macfarlane, 1941), and in the past no insistence on uniformity. As a result the 100% reading of one commercial haemoglobinometer may be equivalent to 80% on a second or 120% on a third. It is hoped that the standard defined in the B.S.I.'s specification for Haldane-Gowers haemoglobinometers may lead to uniformity, which is essential if haematological results are to be compared. It is emphasized that the standard now proposed is only an *interim* standard. In the opinion of the Subcommittee a satisfactory 100% standard must be related to total haemoglobin in normal human blood. (See Section I.)

E. Method of Relating Other Standards to the Defined Interim Colour Standard

It is proposed for the present to take the colour standard defined for the Haldane-Gowers haemoglobinometer as an interim basis of standardization of other apparatus and methods. Thus the standard of any other method may be fairly closely related to this standard by comparing it with a calibrated form of the Haldane-Gowers haemoglobinometer specified above. Failing this, O_2 or CO capacities of *normal* bloods may be used as a rough basis of standardization.

F. Recommendation of the Sahli Method where CO Gas is not Available: Criticisms of the Method

Where CO gas is unobtainable the Subcommittee considers that some form of the acid haematin method must be used. Where possible it should be carefully standardized as suggested above and used always in the same way. The colour of acid haematin is known to develop over many hours. Newcomer (1919) has published a simple equation relating the amount of colour developed to the time the blood has been diluted with N/10 HCl. The members of the Subcommittee find the colour of acid haematin difficult to match and the colour wedges and artificial standards supplied with some forms of Sahli instrument often unsatisfactory. The most satisfactory form of artificial standard is thought to be a piece of Newcomer's glass. It has been claimed that substances in whole blood other than haemoglobin can contribute to the colour developed by N/10 HCl from whole blood (Wu, 1922). The B.S.I. Committee which standardized the Haldane-Gowers haemoglobinometer proposes to standardize this instrument also.

III. THE USE OF THE HAEMATOCRIT

The haematocrit is used for two purposes: (1) to determine the relative proportion of cells (red and white) to plasma in a given sample of blood; (2) to determine the total volume of red cells in a given sample of blood so that an estimation

* B.S. 797–1938 one-mark capillary pipettes. B.S. 1079–1942 haemoglobinometers (Haldane type).

may be made, knowing the total red cell count, of the mean corpuscular volume of the red cells in the sample.

Anticoagulant.—A mixture of ammonium and potassium oxalates causes no shrinkage of the red cells, and must be used if heparin is not available (Wintrobe and Landsberg, 1935). A 2% solution containing 4 parts of potassium oxalate and 6 parts of ammonium oxalate is made up: 0.5 ml. of the solution is added to a series of test-tubes; the tubes are then dried in the oven, and can be stored ready for use.

Blood.—5 ml. of blood taken from a vein with a dry syringe, and without compression, is added to a test-tube containing the dried oxalate and immediately mixed by inversion to ensure solution.

Haematocrit Tube.—The Wintrobe tube is 11 cm. long, with 2.5 mm. bore, and is graduated with a centimetre and millimetre scale 10 cm. in length. The closed end of the tube has a flat bottom. The tube is filled with blood to the 10-cm. mark by means of a capillary pipette. The Wintrobe tube is then centrifuged for half an hour at 3,000 revolutions a minute if the usual clinical centrifuge available in this country is used. The degree of packing is controlled by the centrifugal force, which is dependent upon the velocity and the radius. The majority of clinical centrifuges in this country do not have a speed greater than 3,000 revolutions a minute, and most have a radius of 4.5 in. It is wise, where possible, to check the speed with a revolution counter. Experiment has shown that no further packing occurs if the time of swinging in such a standard centrifuge is increased beyond half an hour. Admittedly, a greater degree of packing occurs if a more powerful centrifuge is employed, but it may result in some deformation of the red cells. A centrifuge that is used for the first time should always be tested to determine that no further packing occurs if the tubes are swung for longer than half an hour. All determinations should be made in duplicate.

1. To determine the volume of packed cells, both red and white, the upper level of the whole cell column is read. It has been shown (Gregerson and Schiro, 1938) that after centrifuging normal blood approximately 4% of plasma still remains among the packed red cells, which means that of the packed-cell volume about 5% is plasma. This observation was, however, made only upon normal blood. It does not appear justifiable to apply such a correction automatically to all blood samples until further data are available. It is therefore suggested that at present no correction in the volume of packed cells be made to allow for retained plasma.

2. To estimate the total volume of red cells, in order to determine the mean corpuscular volume, the lower level of the white cell layer is read. Again for reasons given above, it is probably wiser at present to ignore the plasma retained in the packed cells. If the correction were introduced it would alter all values at present accepted for the normal mean corpuscular volume.

SUMMARY OF THE RECOMMENDATIONS OF THE SUBCOMMITTEE

The Subcommittee is unable to recommend any colorimetric or photometric method for accurate haemoglobin estimation. It finds that there is need for an accurate colorimetric or photometric method that measures total haemoglobin. Iron estimations on washed red cells are recommended as the best available check on total haemoglobin estimation.

Venous blood drawn without stasis is preferred for haemoglobin and haematocrit estimations.

The form of Haldane-Gowers haemoglobinometer recently standardized by the British Standards Institution (B.S. No. 1079–1942) is recommended for clinical haemoglobinometry. All colour standards, whether obtained commercially or specially prepared (see II B and C), should be checked by the N.P.L. Care should be taken to discard any standards that fade or show alteration of tint.

The standard colour defined by the N.P.L. in B.S. No. 1079–1942 is recommended as an *interim* basis of standardization. The Subcommittee finds none of the proposed 100% standards acceptable. It considers that the most satisfactory basis of standardization would be a knowledge of the total haemoglobin content of the bloods of normal men.

Where CO gas is unobtainable the Sahli haemoglobinometer must be used. It should be standardized as suggested.

Red cell volume estimations should be made in Wintrobe's haematocrit tubes spun at 3,000 r.p.m., in the Hearson's centrifuges available in this country, till no further packing occurs. The lower level of the white cell layer is read. As anticoagulant, heparin or a mixture of ammonium and potassium oxalates is used.

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• These are references on the physical aspects of colorimetry and photometry
† These references are extensively quoted in the section on haemoglobinometry in Peters and van Slyke's *Quantitative Clinical Chemistry*, **2**, 661.

CAESAREAN SECTION IN DYSTOCIA

BY

L. G. HIGGINS, F.R.C.S.

The object of this paper is to suggest that the operation of Caesarean section involves less risk than difficult vaginal delivery, and that the indications for abdominal delivery may be considerably extended with advantage to mother and child.

Personal Series

My personal experience is derived from the series of 220 cases briefly analysed below. These include all operations performed since 1931. Before that date records are incomplete, and early cases cannot be included except to remark that there has been no maternal death among them. The later cases fall into two groups, as follows:

GROUP 1.—*157 Elective Operations; 4 Notifiable Pyrexia (2.5%); Foetal Mortality 5%; No Maternal Mortality*

Indication	Cases	Maternal Morbidity	Infant Mortality
Placenta praevia ..	20	0	2
Grave toxaemia ..	12	1 Pleurisy and bronchitis	3
Breech	21	1 Pyelitis on 12th day	0
Disproportion ..	88	1 Pyelitis on 9th day	1 prem. (error of date); 1 anencephalic
Repeat C.S. ..	16	1 uterine sepsis on 16th day (haem. strep. present)	1 died in 24 hours

A patient is classed as morbid if the temperature rises to 100.4° F. on two occasions in one day of the puerperium.

In all these cases the operation was performed before the onset of labour or when pains had been present for less than six hours. In a large number of such patients the lower uterine segment is imperfectly developed, and in a majority of these cases a vertical "low classic" incision was used, which is truly cervico-isthmial. As a rule the incision just encroaches upon the isthmus, and up to one inch of active muscle is divided. The scar is almost entirely in inactive muscle, well away from the bowels and omentum, and in my experience it heals cleanly without the formation of adhesions.

GROUP 2.—*63 Operations Late in Labour; 8 Notifiable Pyrexia (13%); Foetal Mortality 4.7%; No Maternal Mortality*

Maternal Morbidity	Infant Deaths
Not morbid, 55	2 (failed forceps)
Morbid, 8 (3 chest, 5 genital infections)	1 premature

All the pyrexial cases settled quickly with sulphonamides, and in no case was a positive blood culture demonstrated.

This group may be analysed slightly differently, as follows:

48 failed trial of labour: 3 pyrexial, no foetal death.
15 emergency cases: 5 pyrexial and 2 slightly morbid but not notifiable; 3 babies died.

Nearly all these were cases of disproportion without other disability. In all instances labour had been in progress for longer than six hours. In such cases the lower uterine segment is well developed, and a transverse retroperitoneal incision can be and was employed.

In order to assess the value of Caesarean section it is necessary to estimate the risk to mother and baby. Crude maternal mortality figures are of little value. Many authors have pointed out that the mother is often suffering from some grave complication, by which the outlook is already prejudiced. It is therefore equally meaningless and misleading to quote any mortality rate for "Caesarean section" without the most careful analysis. In a healthy mother the risk is affected chiefly by the operative technique and by the influence of labour. These factors may be considered separately.

Operative Technique

This is of the utmost importance. There is now a great body of statistics which go to prove that the lower uterine segment operation is relatively free from some of the most serious risks associated with the earlier high "classic" incision. The following examples may be quoted:

	Type of Section	No. of Cases	Maternal Mortality
Matthews and Acken (1939)	Classic	743	3·9%
	Lower	264	1·9%
Barrett (1939)	Classic	235	4·6%
	Lower	620	2·1%

The former authors report no deaths from sepsis following their 264 "low-flap" operations at the Methodist Hospital, Brooklyn, although many patients were potentially infected. The remarkable control over sepsis achieved by the low cervical technique is now well known. In spite of the fact that this method is usually employed after several hours of labour, with possibility of infection, the incidence of subsequent uterine rupture is greatly diminished, and post-operative obstruction is probably less common. Matthews and Acken concluded that "in the low-flap operations the fatal cases were attributable to the operator." The advantages of this method were stressed by Munro Kerr and Eardley Holland in 1921, and since then many analyses of series of cases have been reported from continental Europe and from America. Among recent authors who have investigated this point may be mentioned Arnot (1936); Quigley (1940); Phaneuf (various articles); King (1940); Feiner (1936); Campbell (1938); and DeLee (various articles). In all these articles the superiority of the low cervical approach is emphasized, and there is now an overwhelming mass of evidence in favour of a low operation. In the following remarks the high classic operation is not considered further, and the low cervical incision is always implied unless the opposite is expressly stated.

The conclusion is that it is no longer possible to justify the general use of the high classic incision, and statistics based upon this operation do not represent the best results obtainable.

Elective Operations

In cases of dystocia the outlook after Caesarean section is profoundly influenced by the onset of labour. It is convenient to consider, first, elective operations upon healthy mothers, performed before the onset of contractions or very early in labour; and, secondly, those cases in which the operation is performed after many hours of labour, when signs of obstruction are more or less well marked.

In practice the coexistence of a healthy baby and a healthy mother who requires Caesarean section occurs principally in those cases showing such marked disproportion that trial of labour is not considered worth while. Cases also come into this group in which the presence of a breech presentation is the main indication. In patients who have had previous Caesarean section the risks may be somewhat increased by the presence of adhesions, but in such secondary elective sections there should be no risk of previous infection, so I have included these cases in the series below, to show the minimal maternal mortality rate under favourable conditions.

	Total Cases	Maternal Deaths	Cause of Death
Individual series:			
Evers (1934)	27	0	
Bailey (1934)	65	0	
Marshall (1939)	101	0	
Higgins (now reported)	125	0	
Hospital series:			
Glasgow Maternity Hospital, 1934–40	279	1	Shock following spinal anaesthetic
Queen Charlotte's Hospital, 1934–9	48	0	
Matthews and Acken (1939)	77	0	
St. Mary's, Manchester, 1934–8	105	1	Second operation. Haemorrhage from adhesion
Croydon, 1937–8	41	1	Pulmonary embolus
	868	3	

The only cases included in this table are those in which the operation was performed before the onset of labour or after not more than six hours of labour. It is unfortunate that the total number of cases is so small, but few series are sufficiently well analysed to be included. On the results given, the maternal mortality rate is just over 1 in 300. In each fatal case the cause of death bears little relation to the type of operation. In my opinion Schumann (1939) was justified in concluding that "the elective operation carries with it a fairly negligible risk." He suggests that the maternal death rate in elective cases should be comparable to that of interval appendicectomy. The evidence I have been able to collect and my own experience both support this view.

The conclusion reached is that Caesarean section at the time of election is associated with a much lower maternal death rate than is usually supposed. Probably the risk should not be greater than that associated with any simple laparotomy.

Potentially Infected Cases

The effect of labour upon the incidence of sepsis has been investigated by many authors. Although some confusing results are reported there seems to be little doubt that the maternal morbidity rate begins to rise when labour has been several hours in progress. In this respect the bacteriological investigations reported by Harris and Brown (1927) are most interesting. These authors made cultures of the freshly opened uterus in a series of 50 sections. Their results suggest that in most cases the uterus is no longer sterile after six hours of labour, and that infection is not prevented by intact membranes. The duration of labour pains seems to be of greater importance than the condition of the membranes, and several authors have referred to this. The difference in outlook before and after the onset of labour is well revealed by the figures of Marshall and of my own series analysed below:

Clean Cases. (In Labour for Less than 6 Hours)

	No.	Morbidity	Infant Mortality
Marshall	101	14%	2·0% (2 cases)
Higgins	125	1·8%	2·4% (3 cases; 1 anencephalic)

Doubtful and Contaminated Cases. (In Labour Longer than 6 Hours)

	No.	Failed Forceps	Inductions	Over 40 hrs. in Labour	Maternal Morbidity	Infant Mortality
Marshall	70	5	15	18	30%	4·2%
Higgins	63	4	7	19	13%	5·0%

Cases with minor infections—offensive lochia, etc.—are not included. There was no maternal death in either series.

These figures, and the many similar series now published, show clearly the rise in the maternal morbidity rate and in

the infant death rate that is associated with prolonged labour. In practice, with reasonable care, quite extended labour can be allowed, and I have dealt with cases in which pains had been present and the membranes ruptured up to 5 days. The danger of Caesarean section under these conditions is often exaggerated. On the other hand, when the patient is exhausted, when the vagina is dry and the uterus irritable, and when the position is prejudiced by repeated vaginal examinations, attempted forceps delivery, and vaginal lacerations, a stormy puerperium is likely. Even in such cases delivery can often be completed by section with less trauma than by any other method, and the scope of the operation is not always realized. In an early paper Green-Armytage (1931) has drawn attention to the value of the lower-segment section in place of difficult destructive operations.

The conclusion here is that, when labour becomes obstructed, Caesarean section may be employed as a rescue operation with brilliant success. Nevertheless every effort must be made to prevent a clean case drifting into the potentially infected category by not deferring intervention too long.

Forceps Delivery

In many doubtful cases the attendant will have to decide between the alternative of delivery by forceps or by Caesarean section. In moderate dystocia the conditions under which forceps delivery is thought to be indicated vary rather widely in different schools, as does also the individual outlook. The following tables, compiled from the published records of large maternity hospitals, may be taken to represent the average risk to mother and child of delivery in this manner under good conditions.

Maternal Mortality (Forceps Delivery), 1931–9

Hospital	Booked Cases		Emergency Cases	
	Total	Deaths	Total	Deaths
A	674	10 (1·5%)	559	22 (3·9%)
B	968	5* (0·5%)	182	4 (2·2%)

* This figure does not include 3 booked cases submitted to craniotomy, in two of which forceps were tried; in one of these the mother died.

It appears that the average maternal mortality rate may be taken as about 1%. Since the mortality associated with low forceps is very small, most of the fatal cases must occur after the relatively uncommon and more difficult operations of high forceps and mid-forceps, in which, therefore, the mortality must be high.

Persistent Occipito-posterior Positions (Forceps Delivery), 1931–40

Hospital	Total Cases	Maternal Deaths	Foetal Deaths
A	177	3 (1·7%)	22 (12·4%)
B	325	2 (0·6%)	47 (14·5%)
C	375	9 (2·4%)	72 (19·2%)

This table is compiled from "booked" cases only, and emergency admissions are not included. The figures serve to show the risks of the more difficult forceps operations. Delivery by forceps may be possible, but unless the foetal head descends below the level of the ischial spines there will be a high maternal and foetal mortality rate. This point has been emphasized by Dodek (1931); and if the foetal head is in an unfavourable position vaginal delivery is a serious undertaking. The average maternal death rate of over 1% for difficult forceps deliveries does not compare at all favourably with the "operative maternal death rate" of about 0.4% for Caesarean section, which represents an alternative method of delivery for this type of case. The high foetal mortality rate after difficult forceps delivery is very striking.

Infant Mortality (Forceps Delivery), Booked Cases only, 1931–9

Hospital	Total Forceps Deliveries	Associated Infant Deaths
A	674	89 (13·2%)
B	968	133 (13·7%)

In *emergency* cases with obstructed labour the foetal mortality rate is very high. In hospital A, among 559 such cases delivered by forceps, the foetal mortality was 145 (26%).

These results cannot be considered satisfactory. It must be remembered that Caesarean section was introduced to save the child, and the operation should be considered in all cases where delivery by the vagina is likely to be hazardous. If this is kept in mind the mother will benefit, as it is scarcely possible to damage the baby seriously without causing injury to the mother at the same time.

The Elderly Primipara and Forceps Delivery

These patients constitute a special category of dystocia for which forceps are often required. In such cases vaginal delivery is an anxious procedure, and the risks for mother and child are certainly increased. Nixon (1931) has shown the high incidence of breech and persistent occipito-posterior positions after the age of 40, and in his series he found the incidence of forceps deliveries to be at least twice as common as in younger women. In another series, analysed by Lossel and quoted by Munro Kerr (1937), the forceps rate rose to 33%. The influence of these conditions upon the infant mortality rate has been carefully studied by the latter author, who gives the following table, with 185 patients in each group.

	Age 20–30	Age 30–35	Age over 40
Forceps rate	4·3%	26·0%	33·5%
Foetal mortality	2·7%	9·5%	13·0%

In the presence of apparent disproportion a trial of labour becomes less and less likely to end successfully as the age increases after 30. This procedure is not really suitable for elderly patients, and most obstetricians would agree that elective Caesarean section should be employed with much greater freedom than in the case of younger women. Attention must be focused not upon the occasional patient who delivers herself with ease but rather upon the greater number in whom labour will be unexpectedly slow and difficult. Unless the presentation is really favourable, few would encourage the middle-aged primipara to attempt vaginal delivery. An occasional unnecessary section does little harm, but one too few will mean a disaster.

The conclusion is that in the presence of dystocia, when vaginal delivery is possible but difficult, the use of forceps is associated with definite risk to the mother, and the outlook for the child is bad. Delivery by Caesarean section should be more often used in these cases.

Discussion

The figures given above for forceps delivery go to prove that even slight disproportion has a very serious effect upon the outlook for both mother and child. In the presence of dystocia, when labour is often prolonged, the use of forceps carries an obvious practical and theoretical drawback, because delivery cannot be completed until the cervix is fully dilated. When the head ceases to advance, this may never occur, and in other cases the first stage may be prolonged and the mother may develop fatigue before dilatation is complete. With fatigue will come increased possibility of infection and all the dangers of retained placenta and post-partum haemorrhage, while the baby may not survive. It cannot be disputed that a healthy woman is sometimes allowed to drift into a dangerous condition in this way while actually under the observation of her medical attendant. All such cases demand immediate delivery, without aggravation of the tendency to shock which is so often present. Under such conditions it is difficult to see the object of waiting until vaginal delivery by forceps is possible. Even if the infant is born alive the dystocia must be overcome by stretching or tearing of the maternal soft parts. The birth of a second child may be easier, but the mother has paid the price in her damaged pelvic floor. It is better to realize that when labour departs from the normal pattern the process becomes pathological, and delivery is not necessarily normal because it is vaginal. Indeed, it may be easier to repair a cut in the abdominal wall than a laceration of the pelvic floor. In all such cases it seems to me that the trauma to the mother is less and the outlook for the child is much improved if delivery is accomplished by Caesarean section.

Late Maternal Morbidity

Although the immediate maternal morbidity associated with forceps delivery is appreciable, it is probable that the late

sequels are of even greater social importance. A difficult vaginal delivery produces great trauma, and it is easy to damage the mother's pelvic floor to a degree which can never be repaired. I have painful recollections of cases, thought at the time to be quite successful, in which difficult vaginal delivery was effected. Three months later the mother was still tired, listless, and drooping, with backache, leucorrhoea, and a dribbling bladder, spoilt as a wife and as a mother, and unable to enjoy the child fortunately born alive. It is scarcely possible to assess the frequency of sequels of this kind, but undoubtedly they are common. The late Prof. Blair Bell (1931) estimated that each year 60,000 women are more or less seriously crippled by childbirth, and a large proportion of the graver damage must occur at difficult forceps extraction. Such cases show a strong contrast with those delivered by Caesarean section, who are remarkably free from late morbidity. Indeed, it is encouraging to see how quickly the latter regain their original figure and carriage.

Rupture of the uterine scar at a subsequent pregnancy or labour may be classed with late maternal morbidity. In a recent textbook (Browne, 1939) the incidence of this accident is estimated at 4% in the case of high classic operations. There is little doubt that this figure is based upon old statistics, and at the present day the accident appears to be less frequent. As a sequel to lower-segment operations, subsequent rupture of the scar is certainly most exceptional. Discussing this point, Marshall (1939) stated that 50 cases had been recorded at that time, of which only 5 followed the transverse incision. It seems probable that, with modern technique, the possibility of rupture of the scar may be almost ignored. Marshall remarked that no case had occurred in the practice of the Liverpool Maternity Hospital or in DeLee's clinic at Chicago, and I have been unable to discover a record of such a case in a long series of clinical reports recently examined.

The Sterile Labour

Consideration of the infant morbidity will introduce the important psychological effects of the fruitless labour. The mental shock of losing an infant, especially if it is the first one, may remain throughout life. It is often a factor in causing dread of childbirth, with nervous tension and thwarted ambition, drifting steadily towards a childless and hypochondriac middle-age. It is impossible to gauge the incidence of this unfortunate sequel, but I am sure that it is far more common than many suppose. In my opinion it is of the greatest importance, if only for psychological reasons, that the first baby should be born strong and healthy. The prospective patient attends the maternity hospital in order to have a healthy infant, and she expects difficulties to be overcome, so that she will survive her confinement with full vigour for her maternal responsibilities. The loss of a healthy baby in a healthy mother must mean a serious breakdown in obstetrical care.

The presence of dystocia, therefore, should no longer be accepted as a legitimate reason for a raised infant mortality rate.

Trial of Labour and Obstruction

In normal patients a spontaneous delivery under good conditions is associated with a minimal maternal mortality rate of considerably less than 1 in 1,000, and it is probable that really low forceps, with the foetal head below the level of the ischial spines, may almost be classed with this group. Before the onset of labour there can be no absolute distinction between normal and abnormal cases, and in spite of the assistance given by radiography the available methods for the detection of dystocia are notoriously unreliable. In a series of 6,500 deliveries analysed by Alice Maxwell (1927) dystocia occurred in less than half the cases with recognizable pelvic contraction, while more than half the total cases of dystocia appeared when no pelvic abnormality could be detected. A small experience will show that in every woman the first labour is always a trial, and it is surprising how often difficulties arise when they are not expected. On the other hand, it is well known that many young patients with slight disproportion will achieve an easy spontaneous delivery. In such cases the maternal risks are not increased and the infant mortality rate shows only a slight rise, an extra risk which must be taken. In an average series showing clinical disproportion, it may be supposed that a spontaneous delivery will occur in about half the patients. Bailey and Williamson (1927) analysed such a series of 676 cases with great care, and recorded a spontaneous delivery in 66%. No method of operative delivery could give results comparable with those obtained by normal labour, and it is therefore of the greatest importance to refrain from interfering unless this is really necessary for the safety of the mother or child. The object of a trial is to encourage a normal spontaneous or low forceps delivery, in which cases the results are good. A difficult vaginal delivery is not worth while, and the results for both mother and baby are inferior to those of Caesarean section. Excluding purely technical faults, a damaged baby following a forceps extraction is usually evidence of an error of judgment in choosing vaginal delivery. The dangers of unexpected dystocia may be illustrated by the following series of 16 cases of disproportion taken from a clinical report for 1938 of a well-known teaching hospital. All these occurred in booked cases which showed no evidence of pelvic contraction.

- 8 cases of spontaneous delivery, including one case with P.P.H. which required manual removal of the placenta and two blood transfusions.
- 1 case of forceps delivery.
- 1 case of delivery by forceps after perforation.
- 3 cases of craniotomy.
- 3 cases of Caesarean section after many hours of labour. One of these went septic. One baby was stillborn and another died.

Altogether 6 babies were stillborn or died, while of the mothers 2 developed puerperal pyrexia and 3 puerperal sepsis. Clearly the results would have been better if every woman in this series had had a Caesarean section before the onset of labour.

In managing a test of labour it is important to avoid allowing the condition of the mother or baby to deteriorate before making the decision to perform section. The investigations of Harris and Brown, referred to above, suggest that labour for six hours is relatively harmless, and, in practice, awaiting the onset of labour will help to exclude the possibility of premature delivery. At the end of this time it is usually possible to decide whether a normal vaginal delivery can be expected. In longer trials which end in Caesarean section the morbidity rate will tend to rise. Arnot (1936) found the test of labour the biggest causative factor in producing serious pyrexia, and there is little doubt that there is a strong temptation to allow the test to continue too long. In certain cases it is only too easy to allow the patient's outlook to become prejudiced. This must be avoided, although the introduction of the sulphonamides has done so much to improve the treatment of pyrexia. It is an unfortunate drawback to delivery by section that the operation is safest before the onset of contractions or very early in labour, at a time in some cases when the necessity for section cannot be foretold with certainty. It would be of very doubtful benefit to the patient to deal with every potential difficulty by Caesarean section, and in order to avoid this the attendant must feel a challenge implied to achieve normal delivery in every doubtful case. In proportion as the operation becomes safer, the tendency to employ it more freely must increase. Indications may be extended in scope, but they remain fundamentally the same, including only those cases in which delivery by any other method would involve increased danger to the mother or child. At the same time, the results of elective section are now so good that only the smallest margin of error can be allowed in trial of labour, and no bad effects for mother or baby must occur or the whole object of the procedure will be frustrated.

Summary and Conclusions

A personal series of 220 cases of Caesarean section by the lower-segment technique is reported and briefly analysed. A consideration of this and other reported series suggests that the maternal mortality rate in this operation should not exceed 1 in 300.

The consequences of forceps delivery are considered and the unsatisfactory results for mother and baby are pointed out. In view of the encouraging results of Caesarean section, the legitimate indications for forceps delivery require careful review.

The outlook towards Caesarean section should be completely readjusted, and the operation must be used much more freely

in serious dystocia to avoid the maternal and foetal morbidity often reported.

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SOCIAL ASPECTS OF ALLERGY

BY

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Only very recently has proper attention been paid to the environmental factors, in occupations and in home surroundings, which are concerned in the onset and course of disease. Apart from the so-called occupational diseases, the environmental factor is more or less in the foreground in a number of conditions—e.g., certain groups of malignant growth or infections like pulmonary tuberculosis—and it is particularly evident in the group of conditions now classified as allergic diseases. My own observations are based on the examination of more than 1,000 cases of bronchial asthma and other allergic complaints during the last 14 years. Of these, 522 are asthmatics observed in Germany from 1928 to 1932, 365 of them employees seen under the German national insurance scheme; and 489 were cases observed in England since 1934. Of the latter 268 were hospital patients—103 seen at the Westminster Hospital up to 1938, and 165 examined since 1938 at various (17) L.C.C. hospitals.*

Asthma and Other Allergic Conditions in Occupations and Military Service

Most frequent, and of the greatest clinical and social importance, are the allergic complaints of the respiratory tract (bronchial asthma, rhinitis including certain forms of sinusitis, and polypi) and those of the skin (eczema, dermatitis, urticaria, and Quincke's oedema). Rarer and perhaps less well studied are alimentary diseases such as spastic colitis and other spastic conditions of the digestive tract or bile ducts, migraine, and a number of others. In the Services serum sickness and allergy to prophylactic or therapeutic inoculations have to be considered as possible complications.

In all allergic conditions intrinsic (often constitutional) and extrinsic (mostly allergic) factors play their part. Their role is of varying importance not only in each of the conditions and in every patient but also because they change in the same patient at various periods of life.

As the *intrinsic*, predisposing, constitutional factor—endocrine, metabolic, or anatomical—is often inherited, allergic complaints run in families in more than 50% of the cases, according to my observations, and frequently follow the patient during a long period of his life. He may suffer either from one or from more than one of these conditions at varying periods. Allergy is itself a normal body reaction and defence mechanism like immunity, and actually represents the state short of and antecedent to immunity in which increased sensitivity precedes the greater resistance provided by the immunity. Only when this sensitivity remains and becomes a feature of definite clinical illness are we entitled to speak of the condition as "allergic disease."

The *extrinsic* factors—the allergic irritants—are incorporated (1) by inhalation (aerogenous), (2) by ingestion (enterogenous), (3) by touch through the skin (dermatogenous), or (4) by parenteral inoculation. Intrinsic allergic irritation may be caused by resorption of bacterial proteins from focal infections, bronchiectasis, or tuberculous infections. On the other hand, there are definite extrinsic irritations which do not act as allergens but as auxiliary predisposing factors—e.g., SO_2 gases in the air in certain industrial areas. It is still doubtful whether ursol acts as an allergen or in the same way as the SO_2, preparing the mucous membranes for an irritability to allergens.

Allergens are mostly of protein nature, but definite chemical compounds are known to become allergens through the formation of protein compounds in the body, as in the case of group-specific chemical antigens (Landsteiner). The allergen does not always produce clinical signs at the place of entry (reflex or trigger area)—e.g., it may be ingested and cause urticaria in the skin or asthma in the respiratory tract. The allergy often starts with a sensitivity to *one* allergen or to a few allergens that spreads to others if not treated. A patient may have a seasonal hay-fever at first and then become sensitive to moulds or dust: the monovalent allergy becomes polyvalent.

Sutherland (1942a, 1942b) recently stated that the "extrinsic" cases of asthma are suitable for military service and can be easily cured by desensitization. These were obviously cases in the monovalent phase of the condition. The "intrinsic" cases are in his opinion not fit for military service. These are the cases in which the threshold of parasympathetic irritability has been lowered by a longer duration of the allergic condition or in which constitutional factors or focal infections are in the foreground. I (Fraenkel, 1934a, 1934b) have reported that, contrary to an old belief, asthma and tuberculosis of the lungs do not exclude each other: a form of active tuberculosis appeared "masked as asthma" in 4% of my asthma cases. In 16% of my asthma cases an old or productive pulmonary lesion was found.

I have stated previously (Fraenkel, 1937a, 1940) that *prognosis* in asthma depends on the following factors: (1) whether organic changes complicate the condition as a contributing cause of or as a sequel to the asthma—e.g., bronchiectasis, chest deformity, pulmonary tuberculosis or other infections, emphysema, or heart failure; (2) whether the family or personal history reveals a preponderance of constitutional factors; and (3) whether the allergen is easily avoidable or can be immunized against by a course of desensitization. *Mutatis mutandis*, this applies to prognosis in other allergic conditions. House allergens are the most common, but in England the damp climate is responsible for sensitivity to moulds in more than 50% of asthmatics (Fraenkel, 1938, 1939), and, by infection of the respiratory tract, for frequent bacterial sensitivity to the germs of the common cold. In many instances I have isolated the same types of mould from the patient's house allergens and from his sputum and used them for skin tests and desensitization. The moulds most often found positive in skin tests were sporotrichum, cladosporium, penicillium, aspergillus, mucor, and monilia types, and they are probably responsible for the intolerance to certain rooms, houses, or localities experienced by many asthmatics.

Clinical Investigation

This conception makes it necessary in every case to take a very careful history, which comprises a special inquiry into family and personal allergy, and also into occupational and personal aspects of the patient's life apart from the ordinary medical history. Investigation into all signs of parasympathetic irritability, local and blood eosinophilia (polyps, nasal secretion,

* I wish to express my thanks to the London County Council health authorities, to the staffs of the hospitals, and especially to Dr. J. McCartney, Director of the Research and Pathological Services, Southern Group Laboratory; also to Mr. Morley and Mr. Hackett for the invaluable support they gave me in my investigations.

sputum, or mucus in stools), and a full clinical examination including radiographs of chest, nasal sinus, and antrum, are preliminaries to the specific examination for aliergy by exposure and elimination tests. These include scratch, intracutaneous, or mucous membrane tests for the allergens as suggested by the history, or the use of allergen-free rooms, a diet, or filter apparatus (allergen-free bags or masks) (Fraenkel, 1937b, 1937c). These methods can be employed for diagnostic, prophylactic, and therapeutic purposes.

Certification of Cases for Fitness in Occupations or Services

It is evident that cases without organic complications and without a family or personal history of other allergic complaints are the most readily adjusted to industry, particularly those in which one or only a few easily avoidable allergic factors can be established, and eliminated—e.g., urticaria after strawberries or lobster, or rhinitis caused by a fur coat or collar. Next come those in which definite allergy is established by history and specific tests and is improved or "cured" by desensitization—e.g., pollen rhinitis or asthma. Where the allergen is difficult to avoid, as in common food (egg, milk, wheat), climatic or house allergens, moulds, etc., this is the method of choice. These subjects are probably fit for most occupations and for the Services. On the other hand a man with fur sensitivity should not work as a furrier, or a man with sensitivity to wool in the tailoring trade. A man with pollen allergy may be well or be cured in the Navy and yet be unfit for the Army. Patients sensitive to horse-hair or horse dandruff would be unfit for the old cavalry but not for the mechanized tank regiment. Organic complications such as bronchiectasis or heart failure in asthma or the asthma type of tuberculosis make the patients unfit for all but light occupations. Pollen allergy or the mould allergy in tomato-growers due to *Cladosporium fulvum* Coke may be a contra-indication to gardening. Sensitivity to certain drugs like salicylates or ipecacuanha contraindicates a job as a chemist. A person who has shown signs of allergy should be tested before being taken into trades in which the danger of allergic irritation exists. This can be done by skin-scratch or intracutaneous tests in such instances as fur sensitivity or allergy to wool in the tailoring trade, or by Jadassohn's patch test in cases of skin sensitivity to chemical irritants occurring in many industries Allergy to grain dust, to feathers, or to horse dandruff may be a contraindication to employment on farms, and allergy to flour for millers and bakers. The same person may remain well and fit in another occupation.

These *occupational factors in allergy* are definitely of less influence than house allergens, house dust, feathers, or mattress contents or moulds cultured from them, because of our closer and longer contact with the latter; they, however, are by no means unimportant. Ancona and Frugoni have reported a type of asthma observed in all farmers, millers, or bakers who came into contact with grain infested by a tinea-producing species of an acarus type—*Pediculoides ventricosus*. The allergen worked like an obligate contaminating germ in 100% of those exposed, and the asthma cases would certainly be "accidents" of occupation in the proper sense of the term. The same applies, in my opinion, to a great number of allergic cases in which the occupational exposure is responsible for the onset of an allergic complaint as proved by the history and by specific tests. I have mentioned such instances in millers, bakers, and farmers who are sensitive to flour, in farriers, farmers, and horsemen who are allergic to horse-hair or horse dandruff, and in gardeners or fruiterers with allergy to the cladosporium mould on decaying tomato plants. There are, further, furriers or tailors or carpet-makers with allergy to fur or wool or to the dyestuff ursol used in the trade. Lead asthma is well known, as is the asthma due to salicylates or ipecacuanha occurring in chemists. There are also skin irritations, eczema, and dermatitis due to certain types of wood.

The degree of sensitivity of the patient is often decisive. Mayer reported a case of eczema in a workman who got it by contact with a friend who had worked with phenylhydrazine; and another case in which a man became sensitive to ursol when, on the way to his work, he passed by a workshop where this was used. Sometimes a solvent is responsible for a substance becoming allergenic that was innocuous in a different medium.

Compensation Claims

Under the law compensation is paid to workmen only when the occupation and the substance come under the Workmen's Compensation Act, and this applies to but a small number of the actual occupational allergic diseases. A workman in a chemical factory may be entitled to compensation in case of lead asthma or toluidine dermatitis. A tailor with asthma due to wool or fur would not obtain compensation, but he might in case of ursol dermatitis or asthma. A chemist would not be entitled to claim for ipecacuanha asthma or asthma due to salicylates, which I have observed to develop into pulmonary tuberculosis in one case under constant medical supervision. Sometimes a small impurity or a change of a manufacturing process is responsible for the allergy. The present law allows compensation claims for ladies who are allergic and get an eczema from a fur coat or collar dyed with ursol, which I think rather unfair to the salesman.

These examples show that both jurisdiction and legislation are not abreast of present-day knowledge of allergic diseases. In many trades, too, protective measures could be improved, thus providing greater safety for the working population and avoiding considerable expense.

Suggested Protective Measures

1. Allergic diseases are of essential social importance owing to their long duration, especially in the most active periods of life, and to their connexion with the environmental factors in home surroundings and in occupations. In many cases they are responsible for recurring inability to work, leading often to invalidity or, as with the complications of bronchial asthma, even to death.

2. Legislation, jurisdiction, and public welfare should be adapted to our present-day knowledge of allergic diseases, and many more centres for diagnosis, prevention, and treatment should be provided, with staffs trained in the clinical and laboratory side of the problem; and with all the necessary equipment, as in the U.S.A.

3. These centres should be available to doctors for the investigation of their private and panel patients, to the military and civil authorities, and to the industrial and health organizations.

4. They should deal with examinations for certificates for fitness in certain occupations or for the Services, with compensation claims, and with cases in which legal expert advice is required.

5. Their investigations must be based on a careful history which takes into account the constitutional and environmental factors, and on an examination which includes *x*-ray findings, eosinophil counts, and the specific methods of elimination and exposure tests, apart from the routine examination.

6. These methods must include skin and mucous membrane tests, elimination by diet or allergen-free rooms or apparatus, etc., and the use of preventive or curative desensitization, besides treatment of dispositional or auxiliary factors.

7. The centres could protect a great number of patients from premature invalidity or even death, and in other cases considerably shorten the periods of actual illness and thus save man- and woman-power and expense. They would also greatly contribute to teaching and research in allergy.

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L. Stein and E. Wertheimer (*J. Endocrinol.*, 1941, **2**, 418) state that adrenalectomy causes an intense though transient increase in the rate of loss of hair in rats. Along with this there are secondary symptoms ranging in severity from dandruff to extensive ulcer formations. Similar symptoms were observed in medullectomized rats. It was found that an acid extract of adrenal medulla could inhibit this loss of hair, which could also be brought about by a synthetic *l*-adrenaline.

MENINGEAL REACTION IN A CASE OF GLANDULAR FEVER

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During the last six months numerous examples of a clinical syndrome which is characterized by enlargement of the lymphatic glands have been observed among members of the Senior Service. The groups of glands in the posterior triangles of the neck and in the axillae have been typically involved in a discrete, painless, and only slightly, if at all, tender swelling; the axillary masses attained the size of a small tangerine, whereas the glands in the neck remained relatively small, being palpable as numerous shotty lumps. The usual presenting features were headache of a persistent and severe type, stiffness of the back of the neck, and general malaise. Epistaxis was a not infrequent accompaniment. More recently, abdominal symptoms consisting of nausea, vomiting, and abdominal pain have predominated; the abdominal pain had led to a mistaken diagnosis of subacute appendicitis on several occasions by the medical officer submitting the case, a diagnosis which seemed further supported by the marked tenderness over the right iliac fossa. Distinguishing signs in such instances were the presence of a mass of enlarged glands in both iliac fossae and tenderness in these areas. The other sets of glands involved in the malady were the mediastinal and inguinal groups. The former did not produce any specific symptoms, but were demonstrable by radiography.

The disorder has a benign course, and, apart from perhaps a mild pyrexia in the early stages of the condition, no upset of the temperature or pulse rate occurred. Within one to four weeks the patient was free of symptoms, although the glandular swellings required a much longer period before disappearing. Splenomegaly was rarely encountered. The infectiousness of the disorder was made apparent by the incidence of new cases in the same ward and by its development among a number of the medical and nursing attendants.

Differential counts of the white cells of the blood were carried out, and in practically all a deviation from the normal was demonstrable. The polymorphs totalled some 50%, the remainder being made up of small and large lymphocytes and an average of 10% of monocytes. The Paul-Bunnell reaction was negative with but few exceptions.

The relation of the disorder to glandular fever (infective mononucleosis) requires consideration. The general behaviour of the condition would well fit in with such a diagnosis, but the exceptional exhibition of heterophile antibodies must occasion some doubt. Prof. Paul (1941) draws attention to the discrepancies of this reaction. In his own series of 50 cases he obtained 90% positives, whereas he quotes Erf (1936-7), who found that not more than 40% of cases yielded a positive result. Paul rightly argues that the percentage must be influenced by the diagnostic criteria and by the frequency with which the serological tests are made during the disease. The latter surmise is borne out by the example reported by Himsworth (1940), in which the reaction was negative in the early stages of the illness but subsequently became positive 11 weeks after the onset of symptoms. Further observations are necessary before it can be asserted whether distinct categories can be segregated from infectious mononucleosis on the basis of the presence of agglutinins in the patient's serum to the red blood corpuscles of the sheep, or their absence. What has been convincing, however, is the clear-cut clinical picture and course presented by our cases, which now number almost 200. The similarities to infectious mononucleosis are so many that until further evidence is forthcoming regarding the existence of separate and distinct varieties of "glandular fever" we feel justified in including our cases under this diagnostic title.

Complications have been very few. Jaundice was seen on three occasions. Since it was of an obstructive type, and since catarrhal jaundice had been so prevalent in the wards, the coexistence of these two maladies could not be excluded. A mild bronchitis and nasopharyngitis were not uncommon. A skin rash was seen in 4 instances; but it differed individually in appearance, and in all cases was evanescent.

The case presented here is the sole example of a neurological disorder encountered in the series.

Case Report

The patient, a man aged 28, was admitted to hospital on June 17, 1942, with generalized body pains, malaise, and sore throat of a month's duration. His only significant illness in the past was an attack of pneumonia 11 years ago; he was subject to recurrent attacks of tonsillitis.

Examination showed an unhealthy and congested state of the tonsils and nasopharynx, enlarged discrete and painless lymphatic glands in the neck, axillae, and inguinal regions, and scattered rhonchi in the chest. No clinical evidence of disease was discovered in the other systems. The temperature and pulse rate were normal. There was little alteration in his condition until June 22, when he then complained of severe frontal headache, and in the early hours of the next morning became delirious and restless. Examination revealed rigidity of the neck, photophobia, generalized hyperaesthesia, and a positive Kernig sign. No other objective abnormal signs were found in the central nervous system or in the optic fundi. The temperature had risen to 101° F. and the pulse rate to 100. Chloral and bromide were administered with good effect. In the afternoon of June 23 the above findings were more pronounced and the temperature had risen to 103° F. Lumbar puncture was performed, milky fluid being obtained. On analysis this showed a centrifugalized purulent deposit, gross increase in cellular content, and Pandy test + +; there were no organisms in the direct smear or on culture. A differential count of the cells of the C.S.F. showed: polymorphs 87%, large lymphocytes 3%, small lymphocytes 6%, monocytes 1%, endothelial cells 3%. He was placed on sulphapyridine, which was discontinued after four days. On the day after the lumbar puncture a marked improvement in his condition was observed. His pulse and temperature were at normal levels and his delirium and incoherence had disappeared; the frontal headache and the nuchal rigidity were, however, still present. A further lumbar puncture was carried out on June 24; the fluid on this occasion was opalescent and contained a slight purulent deposit. The Pandy test was positive, the Wassermann reaction negative, and a large excess of cells were found (polymorphs 70%, large lymphocytes 4%, small lymphocytes 6%, monocytes 11%, endothelial cells 9%); again organisms were not demonstrable.

The patient continued to improve, and three days from the onset of his meningeal reaction his condition was most satisfactory: the nuchal rigidity and headaches were gone and his temperature had remained normal. The C.S.F. at this date showed a fibrinous pellicle, but was otherwise gin-clear; the Pandy test gave a very faint positive reaction, and the cells were few in number and mainly lymphocytic in type. Culture of the fluid failed to grow any organisms. The results of an examination of the C.S.F. on June 27 were: fluid clear, no pellicle on standing, Pandy test ∓, W.R. negative, and but a few cells of the large lymphocytic class. On the 30th C.S.F. analysis gave a result identical with that obtained on the 27th. The patient's progress was satisfactory and he was symptom-free—although the lymphatic glands were still palpable, but smaller—until July 1, when he developed a fresh tonsillitis with secondary enlargement of the draining lymph glands in the neck and a pyrexia of 101° F. A throat swab showed diplococci in short chains, while Vincent's or Klebs-Loeffler's organisms were not found. The inflammatory reaction of the throat cleared up in three days. No further developments occurred and, apart from the persisting but steadily diminishing enlargement of the glands, the patient appeared to have made a complete recovery. He was discharged for a period of convalescence, following which tonsillectomy was recommended.

Differential white cell counts of the blood gave the following results:

	June 18	July 27
Polymorphs %	79.1	51
Large lymphocytes %	12.7	28
Small lymphocytes %	0.8	11
Monocytes %	6.8	7
Eosinophils %	0.5	3

A blood count (July 3) showed: red cells 5,200,000, Hb 90% white cells 14,500. The blood W.R. (June 27) was negative. Two Paul-Bunnell reactions (June 19 and July 7) were negative.

A guinea-pig was inoculated with C.S.F. on June 24 and suffered no ill effects; necropsy performed on July 28 showed no evidence of disease.

Discussion

Uncomplicated infectious mononucleosis invariably has a benign outcome, and sequelae of any significance are rare. Nephritis is not an uncommon event in the course of the disorder, but the renal function remains unimpaired and rapid recovery ensues. Haemorrhagic phenomena, pulmonary features, and jaundice are other complications, and attention has recently been attracted to involvement of the nervous system.. Bernstein (1940) details the neurological manifestations encountered prior to the date of his monograph. Peripheral cranial nerves are rarely affected, but persistent anosmia and facial palsy have been recorded. Paresis of the extra-ocular muscles (Fledelius, 1935) and photophobia and nystagmus associated with poor articulation (Marshall, 1939) have also been reported. An extraordinary example of glandular fever with a strongly positive Paul-Bunnell reaction, in which a paralysis of the serratus magnus muscle developed during the third week of the illness and which cleared up in about four months, is described by Richardson (1942). The meninges appear to be the commonest site of affection, and Bernstein states that in at least 12 cases of glandular fever the clinical picture of serous meningitis has been found. Often the meningeal features antedate other manifestations of the disease. Nuchal rigidity, positive Kernig and Babinski signs, convulsions, and mental changes have been present in certain of such instances. Bilateral optic neuritis (Gsell, 1937) appeared in one case. The cerebrospinal fluid in the meningeal syndromes accompanying infective mononucleosis usually contains an increased protein and cellular content (chiefly lymphocytic in type), but examples have been reported in which the fluid has been normal in spite of unmistakable clinical signs of meningeal irritation (Huber, 1938). Huber also mentions a case in which the pleocytosis attained a level of 1,000 cells per c.mm. The condition of the spinal fluid in uncomplicated glandular fever is of some interest, but is neither constant nor characteristic. Excess of cells and positive Pandy reactions have been mentioned, but the sugar content and colloidal gold curves remain normal, and the Wassermann reaction is negative even in the presence of a false positive in the blood. Culture of the fluid has proved negative except on four occasions when Listerella were isolated (Schmidt and Nyfeldt, 1938).

A recent communication (Landes, Reich, and Perlow, 1941) deals with a case of infectious mononucleosis the early symptoms of which simulated those of encephalitis. Of particular importance with regard to our own case is the report by Thelander and Shaw (1941). They described 3 cases of neurological complications. The first was that of a meningitic picture in the course of infective mononucleosis; the peculiarity noted here was the fact that the cerebrospinal fluid, which at the onset contained 630 cells per c.mm., at the end of four months continued to demonstrate a pleocytosis consisting of 82 cells per c.mm. The Paul-Bunnell reaction was strongly positive. The two other cases occurred in sisters, one of whom, aged 3½, was suddenly affected by fever, pain in the back of the neck, and a convulsion. No glandular or splenic enlargement appeared during the illness. The C.S.F. contained 40 lymphocytes per c.mm., and the blood showed a white cell count of 17,000 per c.mm., with the polymorphs accounting for 69% of the total. Encephalitis of unknown aetiology was diagnosed. Four days later the other sister, 2½ years of age, became ill with similar symptoms. The cells in the C.S.F. amounted to 70 per c.mm., and were chiefly lymphocytic in type. The total leucocyte count of the blood was 45,700 per c.mm., and a differential count revealed that 81% of these were lymphocytes. Again no enlarged glands or spleen could be found, and the Paul-Bunnell reaction was negative. The authors consider that the findings in the last two cases point either to a diagnosis of infectious mononucleosis or to a hitherto undescribed pathological syndrome, and refer to their large experience with benign lymphocytic meningitis and encephalitis, in neither of which conditions had they seen cases in which the blood picture or the results of serological tests suggested mononucleosis. The third of Thelander and Shaw's cases and the case reported here present many features in common. The large numbers of cases in our series, referred to above, showing similar signs and symptoms and running a similar course, would appear to support our contention that the group, if not glandular fever (as manifested by the demonstration of heterophile antibodies), has a common aetiology and forms a clinical syndrome, of which the present case is unique in the manifestation of a meningeal reaction.

We wish to express our indebtedness to Dr. J. A. Wilson, medical superintendent, who kindly carried out the laboratory investigations, and to Dr. A. M. Scott for his interest and advice.

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THE RADIOGRAPHIC POSTERO-MEDIAL BORDER OF THE LUNG

OR THE LINEAR THORACIC PARASPINAL SHADOW

BY

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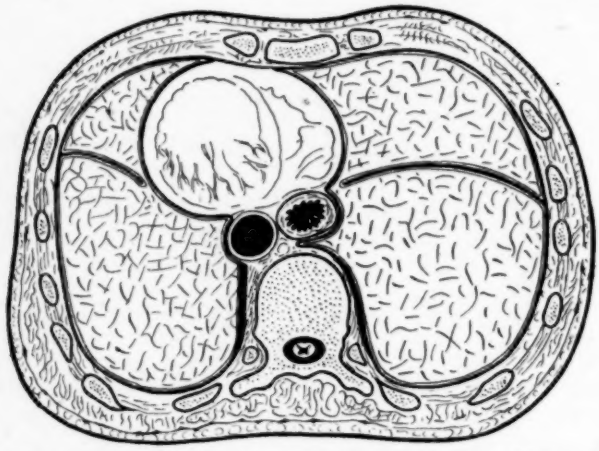
Under the latter title an editorial in *Radiology*, Aug., 1942, p. 229, draws attention to "a slender line of demarcation which is often seen in antero-posterior or sagittal roentgenograms of the bony thorax and upper abdomen. This line lies on the left side of the lower two-thirds of the thoracic spine and sometimes continues as far down as the plane of the first two lumbar segments. The shadow is frequently an enigma to radiologists and other clinicians viewing such roentgenograms. It is not visible on all films or projections of this portion of the body, but is observed with such frequency that it must be the result of variation in the course and position of a normal structure situated therein." Then follows a discussion in which it is inferred that it is not bony, not due to unilateral spinal ligaments, descending aorta, or inferior vena cava, "but it might be an enlarged and elongated hemiazygos vein." "This editorial is written with the suggestion that this finding be referred to as the left thoracic paraspinal shadow and that its frequency be noted by various radiological observers. In this manner its true incidence may be ascertained and its apparent nature confirmed."

An Important Diagnostic Sign

This radiographic line of demarcation is of great importance in the diagnosis of lesions involving the lower dorsal and upper lumbar spine. It is often seen on the antero-posterior radiographs of the dorso-lumbar area on the left side, but it is seen, though less often, on the right side as well. It extends upwards sometimes to the level of the 4th dorsal vertebra, but only as far as the reflection of the pleura on to the diaphragm, for *it marks the postero-medial border of the lung*. As will be seen from the accompanying sketch of a cross-section of the body at the 9th dorsal level, the postero-medial border of the left lung, which has been more thickly outlined for emphasis, lies in a direct sagittal line for two or more inches. For the whole of this distance it is separated from the vertebral body by the pleura, fascia, and some areolar tissue. On a plane with the anterior surface of the body it is displaced laterally by the descending aorta and more anteriorly by the heart. On the right side the medial border of the lung extends partly over the anterior surface of the vertebral body and is displaced laterally by the oesophagus and the heart. Antero-posterior radiographs of this area will therefore show the postero-medial boundary of the lung as a straight line lateral to the outline of the vertebra, because on the lung side of the boundary the tissue is relatively radiotransparent, whereas on the vertebral side the tissue is much more radio-opaque. The descending aorta, being more opaque than the lung, will also be seen as a linear shadow lateral to the postero-medial border of the lung where it is superimposed over the postero-medial aspect of that organ. On the right side, because of the shelving margin of the postero-medial aspect of the

right lung, there is usually no sharp line of demarcation between it and the denser medial structures; consequently the border cannot be seen. It is for the same reason that the more anterior of the medial borders of the lung are not shown.

A glance at the sketch will reveal at once why this line has great diagnostic significance, for it shows the close relation of the medial border of the lung to the lateral surface of the vertebral body. If the latter is crushed its transverse



Transverse section of body at 9th dorsal level. The thickened lines are of the postero-medial border of the pleura.

diameter will be increased and the medial border of the lung will be displaced to that extent laterally. If the fracture is associated with a paravertebral haematoma this will show as an added expansion and further lateral displacement of the medial border of the lung. The antero-posterior radiographs show this as a fusiform expansion of the medial opacity, for the postero-medial border of the right lung will be similarly displaced. In a case which came to court the existence of a crush fracture of the vertebral body was disputed until the presence of a paravertebral haematoma was demonstrated to the judge on the radiograph taken immediately after the accident and its absence from radiographs taken a fortnight later. But the commonest demonstration of lateral displacement of the postero-medial border of the lung is due to the paravertebral tuberculous abscess. It is important because it may be detected before any change in the bone has become apparent. The abscess may extend the whole length of the dorsal spine, is usually fusiform in shape, and is sometimes of the width of the heart shadow; indeed, it has occasionally been missed because it was mistaken for the latter. It may show progressive expansion from the time it is first detected. Because from the level of the reflection of the pleura on to the diaphragm there is below no contrast in the densities of the adjacent tissues, the outline of the abscess cannot be traced in the abdomen—i.e., we are dependent upon the lateral displacement of the postero-medial border of the radiotransparent lung for visualization of the abscess. Consequently, though the abscess may have arisen from caries of one of the lumbar vertebrae, if no bone changes are yet recognizable its origin may not be apparent.

Incidentally, it may be stated that in the abdomen a lateral deviation of the line of the psoas muscle may help us to detect the site of an acute abscess, or a chronic abscess before calcium has been deposited within it. For anatomical reasons this line of the psoas may appear to be continuous with that of the postero-medial border of the lung.

Points in Differential Diagnosis

Because of this common appearance of the dorsal tuberculous paravertebral abscess there is a tendency to diagnose all fusiform deviations of the postero-medial border of the lung as tuberculous in origin, but appreciation of the anatomical features I have described which give rise to these shadows induces further discrimination. Thus neoplasm, both primary and secondary, may cause collapse and an increase in the transverse diameter of the diseased vertebral body: this will cause a lateral deviation of the postero-medial border of the lung, which will be increased, if there is proliferation of neoplastic cells or if associated with haemorrhage, to such an extent that it may resemble a paravertebral abscess. It should be remembered, however, as a feature in differential diagnosis, that neoplasm appears to spare the disks even though all the vertebral body is destroyed.

Fusiform paravertebral expansions have been seen at the site of pneumococcal, typhoid, and paratyphoid abscesses. In these the destructive changes are more frequently present in the disk, which appears to collapse, and within a few weeks the postero-medial border of the lung is straightened out again. The vertebral bodies ultimately fuse. In the acute phase of vertebra plana the involved body is surrounded by fusiform expansion, which within a few weeks gradually disappears, leaving the disk apparently intact but the elements of the vertebral body compressed to a quarter or a third of the normal depth. In Paget's disease that is localized to one or more dorsal vertebral bodies the postero-medial border of the lung is deviated laterally by the expansion of the bodies. In osteochondritis of the spine in infants and adolescents some degree of thickening of the tissues adjacent to the vertebral bodies occurs, and the medial border of both lungs may become apparent just lateral to the border of those bodies; but in this there is no localized fusiform expansion.

In one case rupture of the posterior wall of the aorta was associated with haemorrhage into the areolar tissue surrounding the vertebral bodies: an appearance simulating a paravertebral abscess was produced. Any inflammatory or neoplastic proliferation within the vertebral body or the areolar tissue surrounding it may produce changes such as have been described, and it may be necessary to seek elsewhere for a clue to the identity of the organisms and cells producing the displacement of the lung. Empyema localized to this site would also push the lung laterally.

Summary

The line of demarcation formed at the flattened postero-medial border of the lung by the sharp contrast between the relative radiotransparency of the lung and the radio-opacity of the vertebral tissues is of valuable diagnostic significance in cases of backache.

The anatomical investigations which contributed to the discovery of the cause of this radiographic sign were carried out in the anatomy department of the University of Birmingham with the kind permission and assistance of Prof. C. V. Smout.

Medical Memoranda

A Case of Bilateral Bell's Palsy

Double Bell's palsy has always been looked upon as an uncommon phenomenon. Jellife and White (1935) consider it rare, as do Osler and McCrae (1935), Price (1941), Savill (1939), and Walshe (1941). Numerous cases of facial diplegia have been quoted, but the majority of them have been due to some condition such as epidemic encephalitis, trauma, or a lesion at the base of the brain. Bashford and Wilson (1918), Holmes (1917), and Viets (1927) have recorded numerous cases of facial diplegia due to other causes. Currier (1928) discusses facial diplegia and records two cases, but these are not of the type commonly called bilateral Bell's palsy. Most authorities now agree with Patrick (1916) that Bell's palsy is due to an infection elsewhere plus exposure to cold, although the infection is not always apparent.

CASE HISTORY

An electrician aged 17 was seen at the out-patient department of the Royal Infirmary, Sunderland, on Dec. 9, 1940. About a fortnight previously he was unable to whistle; food had a tendency to drop out of his mouth; and when he washed himself the soap got into his eyes. He stated that he had suffered from a catarrhal "cold" about a week previously. There was no history of ear trouble, whether deafness, pain, or discharge.

On examination both sides of the mouth were drooped, furrows of the brow were indefinite, naso-labial folds on both sides tended to be obliterated, and there was a general loss of expression in the face. Both eyes could be opened against the patient's efforts to keep them closed, the left side perhaps more so than the right. He was unable to close both eyes completely, and wrinkling of his brow was poor. He was unable to whistle or blow out either cheek. Attempts to show his teeth were poor, and the mouth tended to be drawn to the right side to a slight degree. No loss of sensation was detected over the face. Taste on the anterior two-thirds of the tongue was normal. There was no marked sensitivity to loud noises. The other cranial nerves were normal, as were the fundi. The central nervous system showed no other abnormality, and the circulatory, respiratory, alimentary, and urinary systems were normal. Radiographs of the skull revealed nothing unusual.

Examination of the cerebrospinal fluid showed: No cellular increase; protein 50 mg. per 100 c.cm.; negative Wassermann reaction; Lange curve, 0123444421. A blood count gave Hb 84%; R.B.C. 4,300,000; C.I. 1; W.B.C. 7,200—polymorphs 52%, lymphocytes 35%, eosinophils 6%, large mononuclears 7%, basophils 0. The red blood cells were normal in size. The electrical reactions were as follows: Brisk faradic response in both sides of the face; galvanic response normal; slightly sluggish on right side of face. Mr. Jowett of the E.N.T. department reported that no abnormality was detected in the ears and that hearing was normal.

The patient's condition improved gradually, and by Dec. 21 it had practically cleared up. The fact that his electrical reactions remained normal, the paralysis was not complete, and sensation in the tongue was normal bears out the usually accepted idea that recovery will occur rapidly. This was so in the present case.

Re-examination, March 21, 1942.—During the past year he has felt well and has noted no abnormality with regard to his face. He has continued at work without a day's absence. The pupils are equal, the eye movements full, and the power in both eyelids normal. He can wrinkle his brows normally, and the lines of his face on both sides are well marked. He can whistle, and the sensation of his face and tongue is normal.

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X-ray Investigation of Stridor in a Child

Histories of illness in childhood are of necessity obtained second-hand. Although parents are keen observers, it is inevitable that vital facts in a story may be omitted simply because the child was alone when some particular episode occurred. This applies particularly to the habit children have of inserting all sorts of objects into their various orifices. Then it is that *x*-ray examination may reveal an unsuspected foreign body, and provide the answer to a puzzling train of symptoms and signs. The following case shows how radiographs revealed the cause of a tracheal stridor which had been present in a child for a period of over one year.

CASE HISTORY

A boy of 2¼ years was brought to the Princess Elizabeth of York Hospital for Children on account of stridor. The history was that he was well until 13 months before admission, when he had choked over the first mouthful of his afternoon meal and had vomited it. Immediately following this he had been unable to swallow anything but fluids for the ensuing 10 days, after which the power to swallow solids had gradually returned, accompanied by the development of a stridor. He had had the stridor constantly since then, and the mother had noticed that it had been more marked for the last two months. There had been no dysphagia after the initial 10 days, and in all other respects he seemed well.

Ten months after this episode the child was admitted to another hospital for radical cure of a hydrocele. Whilst awaiting operation he had developed otitis media, so the operation was postponed. Later his tonsils and adenoids were removed, and he was finally discharged after a total of 11 weeks, without operation having been performed. Radiological investigation of the stridor was not carried out, although its presence at that time was noted, and was, in part, the reason for postponing operation.

On investigation, 13 months after its onset, the stridor was found to be constant, chiefly inspiratory, and increased by activity. The child was well nourished, and no abnormality was to be seen in the pharynx. The chest was clear. There were a bilateral chronic otitis media and a right hydrocele. Radiographs showed a cog-wheel 3/4 in. in diameter lying in the coronal plane at the level of the sterno-clavicular joint and posterior to the trachea, which was narrowed to a slit at this point. The supposition that the wheel was in the lumen of the oesophagus was confirmed by a barium swallow, which showed the barium stream being divided into two by the hub of the wheel. Under general anaesthesia the wheel was successfully removed by grasping it in crocodile forceps passed down an oesophagoscope. Its removal was followed by the discharge of a few c.cm. of foul-smelling pus and some fresh blood.

Post-operative progress was satisfactory. The child was given no fluid by mouth for 24 hours, an intravenous drip glucose-saline being maintained for this time. Thereafter fluids by mouth were started in small quantities and rapidly increased. There was no dysphagia, and no pyrexia after the first 24 hours. The stridor gradually decreased, and was practically absent when the patient was discharged three weeks later. A barium swallow given two weeks post-operatively showed considerable residual deformity of the oesophagus, but no obstruction. A follow-up is to be carried out to detect the possible onset of a stricture.

I am much indebted to Mr. C. P. Malley for permission to report this case, and to Dr. C. Hilliard of Hertford County Hospital for the radiographs taken.

RUTH M. STEVENSON, M.B., B.Ch.

Reviews

ANAESTHETICS AFLOAT

Anaesthetics Afloat. By Surg. Lieut.-Commander Ronald Woolmer, R.N.V.R., B.M., B.Ch., D.A. With an introduction by Surg. Capt. H. D. Drennan, D.S.O., R.N. (Pp. 120; illustrated. 6s.) London: H. K. Lewis. 1942.

A surprising amount of sound and useful information is collected here. The author has a pleasant style and gives essential information without weighing this down with unnecessary details. From his own experience of anaesthesia at sea he deals clearly with special problems that may be met with there, and this practical teaching is invaluable to those who must work under emergency conditions. The chapters on "Mishaps and Difficulties in Anaesthesia," on "Anaesthesia in Relation to War Wounds, Injuries, and Shock," and on "Mode of Anaesthesia for Various Operations" are especially good. Full details of the preparation of patients for general anaesthesia are given, and the chief methods of spinal analgesia and the most useful types of local analgesia are described and illustrated.

Among the few controversial points are these: Many anaesthetists would consider that this author's advice that morphine for premedication be given three-quarters of an hour before operation would lead to respiratory depression during the induction, in cases where ether is used, and it is now more commonly taught that morphine should be given one and a half hours before operation. The instruction that a patient who has developed ether convulsions should be placed in the Trendelenburg position is contrary to the usual teaching, which advises the head-up (anti-Trendelenburg) position. Then, whereas the correct warning is given not to use general anaesthesia for operation for peritonsillar abscess, yet it is surprising to read that local anaesthesia should be achieved with the ethyl chloride jet. One wonders why a cocaine spray is not advised, since the average patient would inhale enough ethyl chloride to become unconscious.

The usefulness of intravenous barbiturates is rightly stressed, but the statement about evipan and pentothal, that "both drugs, however, have a very high margin of safety," true though it is for the experienced person, may give an inexperienced anaesthetist undue confidence with them. Very sound advice is included as to the care with which endotracheal intubation should be performed. The instructions on the treatment of a patient during operation under spinal analgesia are excellent, and could be read with great advantage by those anaesthetists, and also surgeons, who habitually disturb the patient by asking him if he is feeling pain.

This book will really fit into the pocket; it has a special usefulness in time of war, and the author is to be congratulated on this valuable addition to the literature.

PROBLEMS OF BLOOD TRANSFUSION

Blood Substitutes and Blood Transfusion. Edited by Stuart Mudd, M.A., M.D., and William Thalhimer, M.D. (Pp. 407. $5.00 post paid or 27s. 6d.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1942.

This "symposium monograph," edited by Stuart Mudd and William Thalhimer, is based on papers read at the annual meeting of the American Human Serum Association held in 1941 and revised and brought up to date in the spring of 1942. The subjects discussed include aetiology and mechanisms of secondary shock; methods of preservation of plasma and serum; haemoglobin, serum albumin, and casein digests as blood substitutes; storage, transportation, and administration of whole blood with special reference to iso-agglutinins and group-specific substances; and therapeutic experiences with serum and plasma. There is little reference to work carried out in England in both the preparation and use of blood derivatives. In the last two years literally thousands of litres of both serum and plasma have been prepared and administered in this country. It is odd, therefore, to read papers devoted to an account of the administration of 250 c.cm. of concentrated serum to one patient.

In spite of the extensive experiences of observers here showing that haemoconcentration does not occur to any marked degree in traumatic shock, Virgil Moon still insists on its

significance in this condition. It is of interest to find several groups of investigators emphasizing that serum appears to be of equal value to and no more toxic than plasma, a point of view which, though held here by many workers, has not hitherto been accepted in the U.S.A. Elliott and Marsh, as the result of clinical trial, conclude that "the clotting of blood does not impart toxic properties to its serum"; while Self and Scudder state: "We favour the use of liquid pooled human serum over liquid plasma . . . the increase in the incidence of reaction to serum is not severe enough to warrant withholding serum for this reason. We feel that just as patients with leukaemia or aplastic anaemia are prone to react to blood transfusions, so are patients suffering from hypoproteinaemia or having abnormal protein patterns particularly liable to reaction from serum or plasma infusion. . . . Our experience suggests that if a patient reacts to serum he is likely to react also to any blood substitute. . . . It is our feeling that patients in shock are much less prone to react to serum or plasma than other patients." This latter point has often been noted by English observers, but there is at present no explanation of it.

Witebsky and his colleagues contribute an interesting paper on the neutralization of iso-agglutinins anti-A and anti-B in O (IV) blood by means of the addition of the isolated group-specific substances. These substances were isolated either from the saliva or hog tissue in the case of A, or from gastric juices or horse tissue in the case of B. Those workers have given 100 transfusions of O blood to which these group-specific substances were added to reduce the titre of the normally occurring iso-agglutinins. It is clearly too soon to evaluate the practical significance of these observations. A discussion on the bacteriological control of the preparation of plasma by workers at Columbia University will be of particular value to those who have been concerned with similar problems elsewhere. The authors conclude that "at present to the best of our knowledge there is no preservative which when added to human plasma or serum will ensure sterility of the final product. The best safeguard for the sterility of these blood substitutes is filtration through bacterial filters."

Though this symposium contains much that will stimulate and interest specialists, it is not recommended to the general and uncritical reader who wishes to gain up-to-date knowledge of transfusion problems.

A MEDICAL PSYCHOLOGIST UNBENDS

Out of Working Hours: Medical Psychology on Special Occasions. By Henry Yellowlees, M.D., F.R.F.P.S., F.R.C.P., D.P.M. (Pp. 152. 8s. 6d.) London: J. and A. Churchill. 1943.

Dr. Henry Yellowlees once remarked that he was brought up on the Bible, Shakespeare, and *The Pilgrim's Progress*—no bad foundation. In his *Out of Working Hours* there is ample evidence of that upbringing. Thus in his Morison Lectures on "The Problem of Adolescence" he makes effective use of the third chapter of Genesis as a parable of that problem. The "return to the garden" as the symbol of a craving for regression is beautifully expressed by H. G. Wells in his story *The Door in the Wall*, and the two provide an interesting scientific and artistic parallel on the same theme. These lectures were given before various audiences, usually non-medical, and are designed to explain what medical psychology is aiming at. The author quotes with approbation Dr. Bernard Hart's remark that "nothing but hopeless confusion can result when one mixes the language of brain cells and nerve fibres with that of thought and conduct"—a warning too often disregarded. In his entertaining lecture to masseuses entitled "Word and Action" Dr. Yellowlees gives an imposing list of things "thou shalt not" talk to the patient about, but his positive recommendations are less precise. His lecture to sister-tutors on "A Little Brief Authority" contains admirable hints how not to treat their probationers. This little volume is brought pleasantly to a conclusion by an oration before the Harveian Society of Edinburgh. Doubtless the truth about Harvey lies somewhere between Aubrey's picture of the "cholerick little man" and the orator's idealized portrait, but we are satisfied that the latter is nearer the mark. Common sense, good humour, and pungent wit characterize all these confessedly lighter efforts of the author.

Notes on Books

The third edition of Mr. G. F. GIBBERD's excellent *Short Textbook of Midwifery* is now available. The author has deliberately avoided new material of doubtful value and has concentrated on that concise presentation of sound orthodox obstetric practice which has already made this little book most popular with students and practitioners. Its popularity is well deserved. It is published by J. and A. Churchill at 21s.

Preparations and Appliances

A NEW FORM OF SIGMOIDOSCOPE

Surgeon Rear-Admiral CECIL P. G. WAKELEY, C.B., D.Sc., F.R.C.S., writes:

Since first using "Colite" instruments some four years ago considerable improvements in design, construction, and power of illumination have been achieved. Hitherto these instruments have been made in solid form only as retractors, tongue depressors, speculae, etc. Vann Brothers have now produced tubular instruments such as sigmoidoscopes, proctoscopes, and direct-vision cystoscopes.

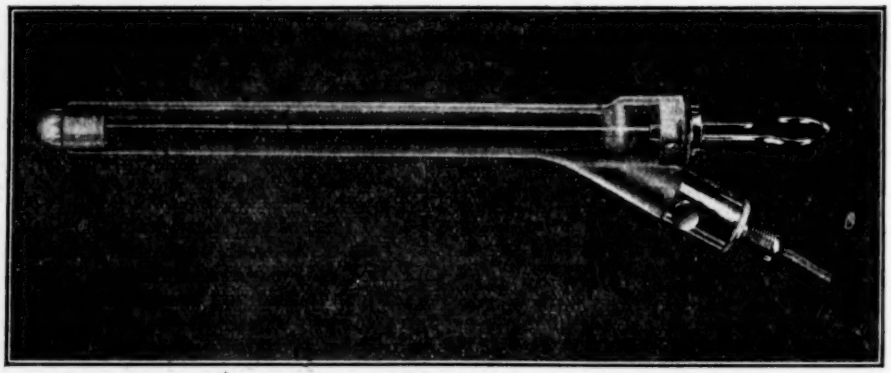

FIG. 1

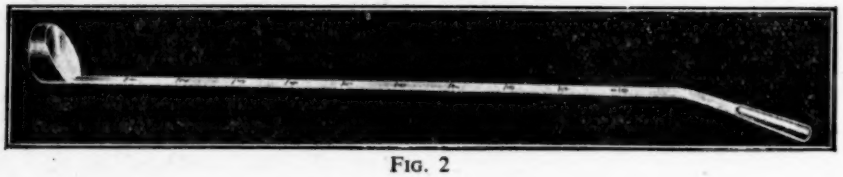

FIG. 2

The main features of the sigmoidoscopes (Fig. 1) are that the source of light is placed outside the tube, allowing an unobstructed view, freedom of operation, and safe use of diathermy instruments, as the material is a perfect non-conductor of heat and electricity. The cold light travels along the wall of the instrument and escapes at the distal end, showing the object under examination in a plastic form and natural colouring. For use with the sigmoidoscope I have had made a stainless-steel inspection mirror (Fig. 2) with a graduated stem. This mirror is of great practical utility, for it enables ulcers, fissures, polypi, and carcinomata to be detected at an early stage. These various conditions can be clearly seen through the wall of the sigmoidoscope, thereby greatly facilitating an early and accurate diagnosis. A further advantage is that once the instrument is introduced the complete examination can be made by moving the mirror inside the tube, thus eliminating discomfort to the patient.

For all practical purposes this apparatus is unbreakable and can be sterilized by boiling. It should prove to be a valuable addition to the surgeon's equipment of really "worth-while" instruments. It is made in two sizes—13/16 in. and 15/16 in. external diameter—by Messrs. Vann Brothers, 63, Weymouth Street, London, W.1.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY FEBRUARY 20 1943

ACCURATE HAEMOGLOBINOMETRY

Until now clinicians and pathologists alike have viewed with some justifiable suspicion reports on such common and apparently simple investigations as haemoglobin determinations and red cell counts when the signature to the report was unfamiliar. This suspicion was justified because of the lack of standardization of the methods employed and the uncertain calibration of the commercial standards available. Thus one worker may use a Haldane instrument in which 100% = 18.5 vols.% O_2 = 13.8 g. Hb per 100 c.cm. of blood; a second might use one of the modified Sahli methods with 100% = 19.4 vols. % O_2 = 14.5 g. Hb per 100 c.cm. of blood; a third a Newcomer, with 100% = 21.4 vols. % O_2 = 16 g. Hb per 100 c.cm. of blood; and a fourth the original Sahli of 100% = 23.2 vols. % O_2 = 17.3 g. Hb per 100 c.cm. of blood. Each of these might have been accurately standardized or not, and in the latter case the error might easily reach 20%. The habit of reporting haemoglobin estimations in terms of grammes Hb per 100 c.cm. as well as in percentages has become more usual during the last few years, and this provides a most valuable check on the meaning of the term "100% Hb." Nevertheless many workers, especially those in small laboratories, and even in the larger ones since the war, have available neither the apparatus nor the technical skill required accurately to determine the haemoglobin content of blood either by the oxygen capacity or by the blood iron method, so they are forced to rely on the colour standards commercially available. It is well known that these "standards" are reliable neither for accuracy of calibration nor for long life.

The British Standards Institution and the Analytical Methods Subcommittee of the Traumatic Shock Committee of the Medical Research Council—whose report on haemoglobinometry appears in the opening pages of this issue—therefore deserve the thanks of all practitioners for their attempt to end this unsatisfactory state of affairs by issuing a specification for a British standard clinical haemoglobinometer,[1] and arranging with the National Physical Laboratory (Teddington, Middlesex) for accurate calibration of the instrument. The pattern chosen is the original Haldane instrument, still used by most clinical pathologists in this country and capable of an "accuracy" of ± 2% on the Haldane scale. The 100% of this instrument corresponds to an oxygen capacity of 18.5 vols. % or to 13.8 g. Hb per 100 c.cm. The N.P.L. is prepared to accept colour tubes, dilution tubes, and 0.02-ml. pipettes for testing for conformity with specification or to provide a detailed statement of errors. It is suggested that colour tubes should be checked by the N.P.L. every six months. The cost of certification is not excessive—£1 for the colour tube and a few shillings for dilution tubes and pipettes.

Some five years ago the B.S.I. issued a specification (No. 748/1937) for haemocytometer counting chambers with Neubauer and Bürker rulings, cover glasses, and pipettes, the permissible error being ± 5% for the counting chamber and ± 3% for the pipettes. These also can be checked by the N.P.L. for conformity with specification or to provide a detailed statement of errors, the cost in the latter case being £1 7s. 6d. per chamber and a few shillings for the pipettes. If instruments certified to conform with specification are used the possible variation between reports is still considerable. If the errors were cumulative, but of opposite sign, a blood which truly had Hb = 100% and R.B.C. 5,000,000 may be reported by one laboratory as "Hb 95%, R.B.C. 5,400,000 per c.mm., colour index 0.88," and by a second as "Hb 105%, R.B.C. 4,600,000 per c.mm., colour index 1.14." Usually, of course, errors tend to cancel each other, but it is obvious that a detailed statement of errors for each haemocytometer chamber, for each haemoglobinometer, and for the accompanying pipettes should be obtained and the necessary correcting factor be applied. Even then the significance of differences of cell count must not be exaggerated, for the coefficient of variation of sampling is of the order of 5%, and counts differing by less than 7% or 300,000 for counts in the range 4,000,000 to 5,000,000 cannot be regarded as significantly different. Higher accuracy can be obtained only by increasing the number of cells counted in several different preparations, and for general clinical use this would require labour excessive in comparison with the results achieved. The general adoption of instruments certified by the N.P.L. for determining blood counts should, however, make it possible to accept blood counts from different institutions without suspicion. This is of great importance when patients are transferred from one hospital to another some distance away.

Now that reasonably accurate instruments are available it is surely desirable that those indices introduced by Wintrobe—the mean corpuscular volume and the mean corpuscular haemoglobin concentration—should come into general use to amplify the colour index. Considerably greater certainty in classifying obscure anaemias can be attained by their use, particularly in the anaemias associated with pregnancy and the puerperium, where true megaloblastic reactions with a raised mean corpuscular volume may accompany a normal or subnormal colour index. The M.R.C. Subcommittee recommends the general adoption of Wintrobe's technique for determination of red cell volume, using either heparin or Wintrobe's anticoagulant. Screw-capped 1/4-oz. bottles (bijou bottles) with a capacity of 6 c.cm. are now in general use, and these can be heparinized to contain 50 Toronto units to prevent the coagulation of 5 c.cm. blood (for about a farthing), so that the question of cost should not in future deter pathologists from using heparin for most haematological work; the need to measure with some accuracy 5 c.cm. of blood into tubes prepared with Wintrobe's anticoagulant is thus avoided.

The British Standards Institution proposes to place the medical practitioner still further in its debt by standardizing an acid haematin (Sahli) instrument in the same way, so that those who determine haemoglobin values in their patients' homes, or for other reasons have no coal gas or carbon monoxide available, will be at no disadvantage compared with their better-equipped colleagues. It is much to be hoped that it will complete its work by issuing a specification for a haemoglobinometer of the Wintrobe-Hellige (Hellige "Neoplan") type, using a glass wedge, for in the experience of many this is far the most satisfactory instrument for general clinical work.

[1] B.S.S. No. 1079/1942. Copies can be obtained from British Standards Institution, Publications Department, 28, Victoria Street, London, S.W.1. (2s., or 2s. 3d. post free.)

PHYSIOLOGY OF CLOTHING

A century and a half ago Count Rumford suggested that the hygienic properties of clothing merited serious scientific study. Included in the aims of the Royal Institution was the instruction of the public in the proper practice of the domestic arts, particularly those relating to "the management of heat and the saving of fuel." Among these the application of the laws of heat to clothing and fuel economy was specially mentioned.[1] That these very subjects have now become the everyday practical concern of every citizen hardly needs emphasizing; and besides these topics there are in modern war, as Sir Leonard Hill has graphically described in his recent article,[2] a considerable number of situations which call for the provision of highly specialized clothing. Wearing apparel for fighting personnel must be planned as protection against a variety of external agencies—wind, water, dust, ice, gas, and fire, as well as the climatic extremes of heat and humidity—and, withal, the garments have to be reasonably light, comfortable, strong, and serviceable. As Sir Leonard Hill says, on all these occasions the provision of the appropriate clothing requires as a basis the application of "physiological common sense." This means particularly an appreciation of the facts of heat regulation in the human subject. But, while it is largely true that specialized protective garments have still to be devised and developed empirically, nevertheless since Count Rumford's day there has been a steady progress in the scientific study of clothing. The most notable contribution came from Max Rubner and his school some thirty years ago.[3] The Munich workers systematized those clothing properties having physiological and hygienic significance and made many observations on the comparative value of different fabrics under a variety of conditions. But for the most part these valuable studies were concerned with clothing materials off rather than on the human subject. Here it may be of interest to note that the most remarkable nonsense written under the guise of science has come in this field from Nazi Germany, where the study of textiles has been pursued by interested parties as a racial issue—thus wool is said to be "superior" to synthetic fabrics because the ancient Teutons were a "wool-people."[4]

After Rubner an advance was made by Hill, who was able to assess the value of garments for particular purposes (e.g., for shipwrecked sailors) without recourse in the first instance to prolonged testing on the human subject[5]; his katathermometer could be provided with a wet or a dry clothing surface, and its rate of heat loss was easily measurable. Rubner, who combined so well the pursuit of pure and applied science, was also a pioneer in the study of heat regulation of the human subject. It is this branch of physiology which of recent years has undergone a notable advance, due mainly to refinements in technique in the laboratories of du Bois, Bazett, and specially of Winslow and his colleagues.[6] The latter have established not only the principles but many of the quantitative data of heat regulation in relation to a wide range of environmental conditions. With their data, and particularly their methods, the thermo-regulatory role of clothing can be understood in a fairly exact way. It is now possible also to formulate the insulation requirements of clothing for a variety of external air and radiant temperatures, taking into account also the level of heat production due to work.[7] Studies on the physiology of clothing have also been proceeding in the London School of Hygiene.[8] Such studies are making practicable the establishment of rational standards of clothing at least as regards thermal properties. But far more than is the case with nutrition, thermal insulation standards can be only a rough guide when applied to individual requirements. As a basis for clothes rationing such standards would have to be greatly modified by hygienic considerations—necessity for changes of clothing for cleanliness, durability, special clothing for work, etc.—as well as by social factors which affect the range and variety of clothing. Nevertheless, the need to take clothing into account (e.g., in budgetary surveys) is well appreciated by social investigators, although this has to be done on a quite arbitrary basis.[9] The objective evaluation of clothing might well prove of value also in connexion with social surveys of such diseases as rheumatism and tuberculosis. As in the case of food, income level has a definite influence on the amount and type of clothing bought.[10] Even if it were desired to use as a reference line the warmth requirement with regard to, say, the coldest prevailing air temperature and wind of particular localities, in practice a further problem would still face the field worker: this is the actual assessment of the probable insulating power of the garments when worn. The value of easy measurements such as thickness, or weight per unit of surface area, as guides in this direction requires careful consideration.

In the laboratory the assessment and comparison of fabrics on a physiological or near-physiological basis is a more practicable proposition, particularly with the data provided by the newer studies of thermal regulation of the human subject. Such investigations have of course been pursued by a large number of workers, particularly since Rubner's time,[11] and they are to-day assuming a greater importance. The introduction of many new and cheap synthetic textile fibres demands that comparisons with the time-honoured fibres be conducted largely on a more exact physiological and hygienic basis. For the comparison of fabrics much attention has of course to be focused on their heat-retaining properties; but the reactions of the fibre and the fabric to moisture are also of importance, not only with regard to manufacture but physiologically as well. In the latter field a number of questions remain largely unanswered. There is the question of the moisture diffusion permeability of clothing since evaporative cooling is an important channel of heat dissipation. Of more interest, perhaps, is the old-standing problem of the moisture regain properties of different fibres. The heat of "sorption" in relation to, say, resting heat production is a significantly large amount when garments are transferred from atmospheres of a low to one of high humidity[12] and the time relations are of the right order.[13] But these are studies on the isolated materials. On the human subject there is little doubt that these effects would be significantly altered by the humidity levels and gradients prevailing in the garments as worn. This stresses again the primacy of physiological investigation for providing a sure basis for the scientific study of clothing.

1 Wolf, A.: *A History of Science and Technology and Philosophy in the Eighteenth Century*, p. 42. London: George Allen and Unwin Ltd., 1938.
2 Hill, L.: *British Medical Journal*, 1942, **2**, 524.
3 *Handbuch der Hygiene*, 1911.
4 Kröner, W.: *Warum Wolle?* Berlin, 1937.
5 Hill, L., and Campbell, J. A.: "The Katathermometer in Studies of Body Heat and Efficiency," M.R.C. Report, H.M.S.O., 1923, p. 179.
6 *John B. Pierce Lab Hyg.*, Collected Papers, 1934–9, Vol. I.
7 Gagge, A. P., Burton, A. C., and Bazett, H. C.: *Science*, 1941, **94**, 428.
8 *Annual Report*, London School of Hygiene and Tropical Medicine, 1941.
9 University of Bristol Social Survey: "The Standard of Living in Bristol," 1938.
10 Nyström: *Economics of Consumption*, Chap. XIV.
11 Black, C. P., and Matthew, J. A.: *J. textile Inst.*, 1937, **1**, 197.
12 Nelbach, J. H., and Herrington, L. P.: *Science*, 1942, **95**, 387.
13 Cassie, A. B. D.: *J. textile Inst.*, 1940, **31**. 17.

THE NUFFIELD FOUNDATION

Lord Nuffield has intimated his intention to hand over to trustees his shareholdings in the Nuffield organization to the value of £10,000,000 as a capital fund for the founding of a charitable trust to be known as "The Nuffield Foundation." He has appointed the following managing trustees to administer the income from the fund: Sir William M. Goodenough, Bt. (chairman); Sir John S. B. Stopford, M.B.E., F.R.S. (vice-chairman); Prof. F. L. Engledow, C.M.G., M.A., B.Sc.; the Hon. Geoffrey C. Gibbs; Sir Hector Hetherington, M.A., LL.D.; Sir Henry T. Tizard, K.C.B., F.R.S.; Miss Janet Vaughan, D.M., F.R.C.P. The objects of the Trust have been given as follows: (1) Medical research and teaching; (2) the organization and development of medical and health services; (3) scientific research and teaching in the interests of trade and industry; (4) the pursuit of social studies; (5) the care and comfort of aged persons. Great Britain and Northern Ireland will be the terrain normally covered by the Trust's activities, but provision is made for any projects that may especially affect the Empire, and in connexion with the first and third items above scholarships and other assistance will be available for Empire students. Another provision is that those of Lord Nuffield's trusts already in being may benefit from the income of the new foundation.

British medicine may indeed count itself fortunate that at this moment in its history, when so many new projects of science and of administration are in the air, it has at its elbow a man who is able to bestow on it such princely benefactions with such a sure vision of what the needs of medicine are. The endowments at Oxford, with the recent establishment there of an Institute of Social Medicine, the Nuffield Provincial Hospitals Trust, and now this new great gift, put this country, and more especially the doctors of this country, profoundly in Lord Nuffield's debt and secure for his name a perpetual place on the roll of the great benefactors of medicine.

PRIMARY ATYPICAL PNEUMONIA, AETIOLOGY UNKNOWN

During recent years much interest has been shown in acute respiratory infections associated with atypical pulmonary lesions and apparently not due to the common respiratory organisms. Numerous authors in a steadily increasing literature have described the condition under the names of "virus pneumonia," "acute pneumonitis," "atypical bronchopneumonia," etc. The Director of the Commission on Pneumonia (Board for the Investigation and Control of Influenza and Other Epidemic Diseases)[1] in the U.S. Army has suggested that these cases now be separated in their classification from other pneumonias and be called "primary atypical pneumonia, aetiology unknown." In a recent article Dingle and Finland[2] ably review the whole subject and append some sixty references.

In this country the condition has been recognized for some years, but particular interest is focused on it at present owing to its occurrence among troops. It is difficult to say whether the disease is actually on the increase here or whether the more frequent and liberal use of *x*-ray diagnosis is disclosing cases which were previously passing unrecognized. An outbreak of atypical "influenzal pneumonia," described by Herxheimer and McMillan,[3] in a boys' school in Devon appears to be a similar condition. In America the disease has been reported mainly by military and student health doctors, who deal with groups of young adults and adolescents, among whom it is prevalent. An account of an outbreak in Cornell University is given by Smiley and others,[4] who draw attention to the ease of transmission of the disease. Young doctors and nurses in contact with cases in hospital have also figured prominently in the records. It seems possible, however, that the condition is not limited to this age group, and cases have been described from infancy to old age. Ramsay and Scadding[5] in 1939 reported apparently similar attacks in children, and more recently two epidemics among young infants have been recorded by Adams, Green, Evans, and Beach.[6]

Diagnosis may not be easy, particularly on clinical evidence alone, for the pulmonary changes revealed by *x* rays are often far more extensive than would be supposed from the clinical findings. The onset is insidious with fever, cough, malaise, headache, and chilliness, which may be preceded or accompanied by sore throat or nasal discharge. The degree of prostration is variable; so also is the temperature, which may be between 99° and 105° F. The pulse rate is ordinarily within normal limits, but may be low. The respiration rate is commonly unchanged. Pulmonary signs, if present at all, are slight, and may be limited to fine moist rales or adjacent areas of resonance and dullness. Such chest signs as are found may change daily or even hourly. The white cell count is normal in most cases. Sputum is scanty at first, but later becomes more productive and mucopurulent. Usually the course of the illness is mild and lasts 2 to 3 weeks, but it may be 8 weeks or even longer before complete recovery occurs and the chest is clear by physical and *x*-ray examination. Severe and, more rarely, fatal cases do occur. Complications include cerebral disturbances, depression, mild encephalitis, meningismus, thrombophlebitis of limbs, and pulmonary infarction. Treatment is symptomatic, and sulphonamide drugs have no beneficial effect. Definite evidence of pulmonary involvement is usually discovered by *x*-ray examination of the chest. Lesions are often found within the first few days, and the first change is an increase in the size of both hilar shadows, which is later followed by an infiltration extending outwards towards the periphery of the lung fields. The infiltration usually appears as patchy densities, mottling, or fine hazing. Such lesions commonly occur in the lower lobes, but may be found anywhere in either lung. In about 20% of the cases they are bilateral. Though the radiographic picture is fairly characteristic, it may be confused with that of pneumococcal pneumonia, bronchopneumonia, acute bronchitis, tuberculosis, pulmonary abscess, metastatic infiltration, and known virus and rickettsial diseases—e.g., Q fever, psittacosis, or influenza.

The aetiology of the disease has not been established. The usual laboratory procedures have yielded entirely negative results, and organisms isolated from the nose, throat, and sputum are generally those found in the respiratory tracts of normal individuals. This, together with the fact that the disease is communicable and that it is unaffected by sulphonamides, has led to the belief that it is due to a non-bacterial infection. Numerous attempts have been made to isolate rickettsias or viruses from the patients. The only workers to meet with much success have been Weir and Horsfall,[7] who reported the isolation in chick embryos and in the mongoose of a filterable virus obtained from each of four patients with the disease. They also found that this agent was neutralized by convalescent serum. Evidently further work is required to determine the aetiological agent, and a number of investigations are being carried on at the present time.

1 *War Med.*, 1942, **2**, 330.
2 *New Engl. J. Med.*, 1942, **227**, 378.
3 *British Medical Journal*, 1942, **2**, 513.
4 *J. Amer. med. Ass.*, 1939, **112**, 1901.
5 *Quart. J. Med.*, 1939, n.s., **8**, 79.
6 *J. Pediat.*, 1942, **20**, 405.
7 *J. exp. Med.*, 1940, **72**, 595.

INFLUENCE OF DIET ON RENAL VOLUME

Despite the classical experiments of Barcroft on the explanted spleen, little use has been made of this experimental method in the study of other organs. Allen and Cope[1] have recently been experimenting on dogs with explanted kidneys, and were able to observe several facts which may have a bearing on the question of hypertension and its treatment. Their main conclusions are as follows. The ingestion of salt and water causes an acute increase in kidney size and rise of blood pressure. These effects may be sustained so long as the high salt diet is continued, but return to normal when an ordinary diet is resumed. The increase in kidney size is therefore thought to be due to hyperaemia. In protein feeding experiments there is little immediate increase in size of the kidney, and the usual effect on blood pressure is to reduce it. Prolonged protein feeding, however, gives rise to enlargement of the kidneys which tends to remain and appears to be a true hypertrophy. It is not clear from the paper referred to what was the effect of prolonged protein feeding on the blood pressure. A further outcome of the experiments is that variations in blood pressure may occur independently of any change in the size of the kidney. The reverse may also be the case. Administration of ether caused a sharp reduction in kidney volume, again emphasizing the possible inaccuracies of experiments made under anaesthesia. These experiments show, therefore, that the kidneys, like the spleen, undergo daily and hourly variations of size during their normal activity. The kidneys of hypertensive dogs were in general more sensitive to changes of diet than those of animals with normal blood pressure. The results also seem to give point to salt restriction in the treatment of hypertension.

[1] *J. Urol.*, 1942, **47**, 751.

"ANY QUESTIONS?"

General practitioners are exceptionally busy people and are confronted daily with questions of health and ill-health that demand immediate answers. Even when there is time for reflection and opportunity to postpone the answer, it is not always easy to find it ready made in one of the books on the consulting-room shelves. In any event, each case of ill-health presents an individual problem in which the stock answer and the stock mixture are not always the most satisfactory. It is natural, therefore, that the practising doctor should look to his weekly medical journals for help in the day-to-day conduct of his work, with, perhaps, expectations that are unduly sanguine. One result is that many do not read their weekly medical journals with as much interest as they read their daily and Sunday newspapers. The overworked practitioner might well retort that the latter are written in a simple and attractive way, so as to lighten the task of acquiring knowledge. There is no disputing this, but news and views in the popular press are treated only on the most superficial plane, and rarely in a way to provide solid information. Medicine is an exacting profession, if for no other reason than that the sciences on which it is founded are growing rapidly and providing the practising doctor with new technical equipment and knowledge. One of the disadvantages of general practice as it is conducted to-day is that it leaves the practitioner with very little time to spare and, indeed, very little energy to make use of that spare time in a way profitable to himself. Let us hope that in the medical world which so many people are now busily planning for the future the planners will not forget this all-important question of leisure. We fully sympathize, therefore, with the feelings of the tired doctor faced with the toil of reading an article three or four pages long, packed with close argument, when what he really wants to know is how to get rid of that troublesome pain complained of by Mrs. X, and what advice he should give to Mr. Y for his pruritus. Before the war, as readers may remember, we tried to meet this difficulty by publishing every week specially commissioned articles under the heading of "Treatment in General Practice." That they met a demand was made clear by appreciative correspondence that reached this office, and by the successful sale of the four volumes of collected articles published later by Messrs. H. K. Lewis. The war interrupted the long-term programme that had been planned, and progressive restriction on space since the war has not made easier the task of catering for the needs of the various groups—research workers, consultants, specialists of many kinds, public health officers, as well as general practitioners—who go to make up the readers of this *Journal*. It must be remembered that this is a scientific newspaper, and one of its duties is to offer a place for the publication of original scientific communications that form the groundwork for the practical advances of to-morrow.

For many years space has been provided at the end of the *Journal* for questions asked by doctors, in the hope that one or more readers will come forward with helpful answers. Occasionally the Editor has sought the views of an authority, and has published these with the question asked, as in the case of Income Tax queries. The latter method will be more widely used, and from now on it is proposed to print, along with selected questions, answers to them from selected experts. That part of the *Journal* may occupy more and more space as time goes on, but for the duration of the war it will be at the mercy of the Paper Controller. It will also be limited by the number and relevance of the questions submitted. But an effort will be made to turn the Queries and Answers column, under another heading, into one of real help to the practising doctor, especially the G.P.

SIR FARQUHAR BUZZARD

Sir Farquhar Buzzard will retire in April from the Regius Professorship of Medicine at Oxford, a chair he has occupied with great distinction since 1928. During that time, largely through his vision and wise counsel, there has been an unparalleled development of the Oxford Medical School, notably in connexion with the Nuffield Institute for Medical Research, the Provincial Hospitals Trust, and the wartime organization of clinical teaching at the Radcliffe Infirmary. Outside the University he has done national work of the first importance in the promotion of schemes for co-ordinating and nationalizing hospital and medical services. Sir Farquhar Buzzard's activities have not been restricted to purely medical work, for he has taken a keen interest in all that pertains to the welfare of the University in various academic appointments. His friends and colleagues feel that his great services should be commemorated, in some permanent form, in Oxford. A representative committee has suggested as suitable memorials the painting of his portrait and, should sufficient additional donations be received, the endowment of a Buzzard Scholarship or Prize in Medicine. This project will make a wide appeal to members of the British Medical Association, over which Sir Farquhar presided at the successful Annual Meeting in 1936. Donations may be sent to the Vice-Chancellor of the University, Oriel College, Oxford.

SCIENTIFIC FREEDOM AND SOCIAL MEDICINE

BY

GEOFFREY BOURNE, M.D., F.R.C.P.

The Social Security plan proposed in the Beveridge report involves the assumption of "comprehensive health and rehabilitation services" (Part VI, para. 409). It is stated that "a comprehensive national health service will ensure that for every citizen there is available whatever medical treatment he requires, in whatever form he requires it, domiciliary or institutional, general, specialist, or consultant, and will ensure also the provision of dental, ophthalmic, and surgical appliances, nursing and midwifery, and rehabilitation after accidents" (para. 426).

The problems that arise in the organization of such a service are not dealt with in the Beveridge report. But, obviously, the implementing of the Beveridge plan, or some modification of it, after the war will entail the organization of a State Medical Service on a grand scale. The present voluntary hospitals will have to become a part of such an organization. Furthermore, even without a Social Security plan which involves a great number of monetary contributions from individuals, economic conditions after the war are likely to be such that it will be impossible to finance large hospitals by voluntary means. It is therefore highly probable that all hospitals will come under some form of State or local council control.

The medical profession welcomes the development of a comprehensive medical service. Measures for the promotion of maximum health in the country by the extension of preventive medicine and the easy availability of treatment are necessary steps in the advance of civilization, and are already overdue. The financing of such a medical service is a social and economic problem and not a medical one. But the *nature of the organization* of a State Medical Service is a matter which vitally concerns doctors in their professional capacity. It is the duty of practising medical men, and particularly the members of the staffs of the voluntary hospitals, to see to it that the socialization of medical services does not result in any loss or curtailment of their *scientific freedom* in the exercise of their profession.

If the planning of a State Medical Service is left in the hands of the politicians and the civil servants it will almost certainly be modelled according to the traditions of the Civil Service and along the lines of the already existing E.M.S. and L.C.C. hospitals. The defects of the Civil Service, particularly in regard to the stifling of initiative and the shunning of responsibility, are notorious (see *Passed to You, Please*, by J. P. W. Mallalieu).

Doctors have, or should have, as their only professional objects the provision of the best possible preventive measures against disease, the best possible administration of treatment, and the most rapid improvements possible in the technique of treatment. They are concerned greatly in the facilities given them for this purpose and demand that they shall be the best procurable, but care little by what machinery these facilities are paid for.

There are in existence at the present time two types of medical service—the autocratic, as typified by the L.C.C. and the E.M.S., and the democratic, as typified by the voluntary hospitals. In the autocratic services full power is in the hands of the chief medical officer; by him it is delegated to the medical superintendents, and by them it is wielded in individual institutions over their subordinate officers. In the democratic institutions full power over medical matters is entrusted to the democratic medical committees, composed of practising physicians and surgeons who are experts in their several lines and who meet and discuss medical matters on a footing of equality.

The Autocratic System

In this system the power over medical matters resides in one man, whether that man be the head of the service or the head of an institution. One man is incapable of having a good knowledge of all branches of medical science, and no human being exists who does not have personal predilections, sympathies, or antipathies, whether these refer to men or to things.

Promotion to the autocratic status goes by seniority and political and administrative acumen. Seniority in an autocratic service is likely to be assisted by a compliant attitude towards superiors, conformity with rules, and conservatism of outlook; it is likely to be impeded by a tendency to criticize and by liveliness or originality of outlook, and even by devoted application to medical practice. The former qualities are good in routine administrators but are fatal to research, for which the latter qualities are essential. Promotion removes the autocrat further from up-to-date medical care of patients and further from the scientific outlook, and brings him nearer to the day-to-day problems of administration and to the political point of view. The autocrat, being immune from the criticism of his juniors, and thus from criticism at all, is in danger of getting to believe that he has a universal knowledge of medicine, surgery, gynaecology, and all the ancillary sciences.

Science in the autocratic system is under several disadvantages. A medical superintendent can forbid the use, in his hospital, of a method of treatment in which he personally does not believe or of which he personally disapproves, however little he may know of the subject in question. This power has in such institutions been not infrequently exercised. Alternatively, should a method of diagnosis or of treatment be disapproved of by the chief medical officer, it can be effectually denied to the practising medical men by withholding the necessary funds. An institution of over 1,000 general beds was considered by the local physician to require an expensive instrument of routine diagnosis. The chief medical officer of the area refused to recommend its provision. When the machine was obtained independently from a voluntary organization, a bureaucratic official storm resulted. In some autocratically run hospital systems a medical officer may not publish a scientific article or paper unless permission has been obtained from his superiors. When it is remembered that the younger men are the initiators of new work, and the older men in such institutions are largely divorced from living medical science, the menace to vigorous scientific development is clear.

Free speech in medical matters is denied to those practising in an autocratic medical organization. A medical officer who criticized his medical superintendent would become unpopular, would jeopardize his future, and would do no good to his patients. Letters by medical officers in the medical papers criticizing the organization or the treatment of their superior colleagues are not seen. Anonymity does not provide an outlook for such criticism, since it is not encouraged by the editors of scientific papers, and rightly, for the principle is wrong. In an attempt to divert criticism certain autocratic institutions have allowed their medical staffs to meet—a generous concession—at regular intervals to discuss internal matters, scientific and otherwise. Such meetings are devoid of power, and have no official status and no power of initiation.

Discipline over the scientific thoughts and actions of medical men can thus be maintained by their more politically powerful senior colleagues by the means mentioned above: threat to promotion, influence of financial control, power over scientific and medical interests, veto of criticism. There is another and more pernicious handle. Should a medical officer be dismissed as a result of a quarrel because he is disgusted with some professional situation, he risks forfeiting part of the sum set aside annually for pension purposes, for the decision rests with his medical superior. This threat grows as years pass; for the sum is greater and his family obligations are increased.

Political pressure is applied with greater ease to the head of an autocratic unit, and this is, of course, the central feature of Nazism and Fascism. Thus in an autocratic system science is more at the mercy of the politicians. This fact constitutes a grave threat to medical research and even to medical education, for politicians have on the whole short-term minds, and are far more interested in the immediate application of available medical methods than in the discovery of newer and better ones. *In medicine the future is always greater than the present.*

A lay member of a certain autocratic committee remarked, "I will not have *my* people taught upon for the benefit of medical students." There is no guarantee that those with such an outlook may not be in a position to dictate to medical science in more ways than one.

In this connexion it is salutary to remember that nearly all advances in science are innovations that are made by persons whose characters are often coloured by outspokenness, independence of outlook, intolerance of mediocrity, dislike of fools, and love of liberalism. They will thus be the natural enemies of the safe man, the careerist, the respecter of forms and precedents, and the efficient administrator of set rules and regulations. History is full of examples proving that new scientific discoveries and advances are often strongly, even bitterly, opposed by the conservative and well-established elders of professions. Opposition is, *a fortiori*, stronger and more ignorant when it comes from the general public, whose point of view is mirrored more or less closely by politicians. In the past, in the absence of an autocratic medical system, this opposition has been stubborn enough. In the presence of such a system it would be hardly less strong. Anaesthesia for women in childbirth was stoutly condemned by certain religious bodies in the past. Lister's innovation of antisepsis met with scorn and obstruction on the part of his elder professional brethren. Pasteur, in his attack upon the theory of spontaneous generation, was bitterly opposed by his academic fellows for many years. Sir James Mackenzie's work, in its earlier years, was scarcely welcomed by the more conservative of his colleagues as it deserved. If these men had been faced with an autocratic power pyramid of senior medical officers and superintendents, it is legitimate to believe that their struggles would have been harder and their success problematical.

The lapse of time does not mitigate the case, for medical problems and ideas are as revolutionary and unexpected now as ever in the past. Nor is it safe to infer that politicians or the public are wiser, or that autocracy will always be benevolent. There is also the risk that the activities of research workers might be forcibly canalized along unprofitable channels to suit the publicity demands of some political campaign. Freedom of scientific action is above all things essential to research, whether this is clinical or laboratory in character.

The Democratic System

Most voluntary hospitals are managed, medically, by committees composed of the members of the medical staff on a footing of complete equality. They elect their own chairman, vice-chairman, and secretary, and these elections are for determinate periods only. They often appoint subcommittees from their members to inquire into and report back upon special points—medical, surgical, pathological, etc. Full medical responsibility is delegated to them by their lay boards. Their advice regarding the medical affairs of their hospitals is respected and nearly always taken by the lay boards. These medical affairs comprise matters of routine, research, equipment, and medical organization, and also the appointment both of house medical officers and of members to the ranks of the consulting staff. The standing and reputation of the great voluntary hospitals of Britain, internationally, in scientific circles, and in the eyes of the public generally, are sufficient proof of the medical adequacy of the system. Free speech, free criticism, free intellectual competition, and professional vigour are safeguarded and encouraged.

Promotion, or standing in the eyes of their colleagues and of the public, is the result of ability, not of seniority. Safe mediocrity, absence of initiative, and a reactionary outlook bring obscurity and not professional success. *Advances in treatment* are the direct responsibility of the individual expert in a particular branch. They cannot be inhibited by ignorant or unsympathetic seniors. *Criticism* thrives in the democratic atmosphere. Any innovation stands or falls by its intrinsic merits.

The lay board has the advantage of direct access to expert opinion in any one of many different branches of knowledge, instead of having to obtain this through an elderly and rather medically rusty autocrat, who may have become a political jack-of-all-trades.

The Two Systems and a State Medical Service

The designers of a State service will be either civil servants or medical politicians. The former are accustomed to ensuring the smooth running of an already existing and scientifically dead function, or a function so static that it bears no comparison with the live sciences of which clinical medicine is composed. Such static functions are the enactment of laws, the supply of transport, electricity, gas, and water, the carrying of the mails, etc. These activities can be efficiently run by autocratic boards. Delegation of responsibility is thus the antithesis of the Civil Service tradition, and the resulting system of control, checks, and counter-checks is the chief reason for the leisurely running and the wastage often seen. The medical politicians, seeking their opportunities as careerists, will not be unwilling to accept a system in which power is centralized *at the top* and *in their hands*, for few men can resist the desire for personal power.

The public must be warned that an autocratic system will impede the speed and the efficiency of medical services, and will be likely to hinder the proper development of medical science, both in the field of prevention and in that of treatment. If the public understands the case, proved already by the voluntary hospitals, neither the lay nor the medical politicians will be likely to obstruct a proper extension of the democratic system.

The public owes to the democratically run hospitals the education of its doctors, first-class treatment of generations of its sick, and research work which has resulted in the saving of millions of lives in the past and should result in the saving of more millions in the future. That these hospitals and their staffs should go cap in hand to the civil servants and the politicians, hoping that on the whole they will not be too severely dealt with or harshly regimented, is a ludicrous situation. They should, if necessary, go direct to the public, by all channels which are available, and should demand freedom to continue to develop democratically in any State service. They should further point out that it is a privilege and a duty of the nation that full and adequate means should be proffered for the furtherance of a freely developing and vigorous medical science. It is, furthermore, a magnificent financial investment.

The democratic system of medical service is entirely compatible with State control. The medical constitution of hospitals should remain as it is at present in the democratic institutions. It would be the privilege of the State to finance these institutions to the necessary extent, and to be represented adequately by financial, legal, or other representation upon the already existing lay boards. In addition a medical organizer should be a member, on an equal footing, of the medical committee, to specialize in and advise upon the minutiae of medical administration in contradistinction to practice.

The medical profession as a whole should also demand that the autocratic type of medical service should be abolished where possible, and should be replaced by a service of the democratic type. What is professionally and scientifically important for the voluntary hospitals is no less important, professionally and scientifically, for their less fortunate State-enslaved fellow institutions.

Conclusion

Hospital staffs should immediately pass resolutions, and, by combining and organizing, should see that these resolutions are implemented in the following senses:

1. No medical system is to be tolerated which is a reversion towards medical autocracy and away from medical democracy.

2. No system is to be tolerated in which free speech on medical matters, free criticism of medical affairs, and free publication of scientific work are discouraged or in the slightest way impeded.

3. The democratic system of hospital organization has proved its value to science, to medical education, and to the public. It is fully compatible, if this last is thought desirable, with State control and State finance of medicine.

4. Combined and comprehensive steps shall be taken, if necessary, by the democratically run hospitals to inform the general public in Parliament or in the Press as to the necessity for freedom for medical science and for a democratic basis for medicine.

TREATMENT OF PHOSPHORUS BURNS

The Ministry of Health has issued the following memorandum (E.M.S.I. 396) on the treatment of phosphorus burns. It should be substituted for the instruction contained in E.M.S./Gen./336 (revised).

At the Incident

1. Apply water immediately to the affected part to extinguish any burning phosphorus and to keep the area moist (water from the water-bottle may be used for this purpose).
2. Apply a clean mines dressing, or clean lint, or clean cloth soaked in water over the burn. Whatever dressing is used it *must* be kept wet, as otherwise it may burst into flame.
3. With the wet dressing in place, the casualty, if a sitting case or able to walk, should be conveyed or directed *at once* to the nearest first-aid post or hospital for further treatment.
4. Stretcher cases must be sent direct to a hospital with the least possible delay. To ensure immediate attention at the hospital these casualties must be labelled, and the label marked with a P. The attention of the ambulance attendant must be drawn to the case.

At the First-aid Post or Hospital

1. Immerse the affected part in water, or, if sufficient water is not available, apply a mines dressing soaked in water. Keep the dressing wet until the following treatment can be applied.
2. Thoroughly flood and wash the affected area with bicarbonate of soda solution (roughly two tablespoonfuls of the powder to a pint of cold tap water). Pick off with forceps any obvious particles of phosphorus, disclosed by examination *in the dark* (phosphorescence).
3. Swab the affected area with a 1% solution of copper sulphate, which will coat any remaining phosphorus particles with a dark deposit of copper phosphide. Remove with forceps or gauze as much of this as is possible without damaging the tissues.
4. Immerse the affected area in the bicarbonate of soda solution for a prolonged period. The duration of this soaking depends upon the size and depth of the burn—i.e., small burns 1/2 hour, large burns 1 to 2 hours. If immersion is impossible keep the sterile dressing repeatedly wetted with the bicarbonate solution.
5. Finally, re-examine the burn in the dark for phosphorescence. If this is not present, dress as for an ordinary burn. If there is still any doubt about the presence of phosphorus, dress the burn four-hourly with lint soaked in sodium bicarbonate solution (2 tablespoonfuls to the pint of water) and retain the patient (if at a first-aid post).

No oils or greasy dressings and no tannic acid, triple dye, or brilliant green must be used in the treatment of phosphorus burns *so long as any trace of phosphorus remains in the tissues*. Oils and greases are solvents of phosphorus, and their use while it is present will cause risk of poisoning from absorption.

Reports of Societies

PROPHYLAXIS OF ACUTE SPECIFIC FEVERS

At a meeting of the Section of Disease in Children of the Royal Society of Medicine on Jan. 22, with Dr. DONALD PATERSON in the chair, the subject of discussion was the prophylaxis of acute specific fevers.

Dr. E. H. R. HARRIES said that the fundamental prophylactic measure was the provision and maintenance of a satisfactory environment, which included not only housing, water supply, and sewage disposal but also attention to nutrition. To this must be added the education of parents and teachers. An important point was postponement of age of attack. The poorer the environment the greater the incidence of measles among children of pre-school age and the higher the proportion of cases complicated by bronchopneumonia. During the 1940-1 measles epidemic in London, thanks to evacuation, the ages of the children admitted to his hospital (North-Eastern) were higher and the mortality greatly reduced. From birth to school age the child's environment was that of its parents; later it became the environment of the school, which might be good, bad, or indifferent from a prophylactic standpoint. Early diagnosis of an acute specific fever might be impossible, or the phenomena might be too vague on a first visit to justify more than a suspicion, and he thought it should be allowable for the practitioner to communicate his suspicion to the medical officer of health, and request removal to hospital for confirmation, without being obliged to make formal notification. During recent years considerable modifications had been made in the matter of isolation. Shortened isolation was made possible in scarlet fever by the use of antitoxin, which was advantageous even in clinically mild cases. After isolation and the return of the child to his community, such measures of disinfection as stripping the paper, etc., were relatively unimportant; ordinary spring cleaning and the open window would suffice. As for contacts, with the aid of the Schick test in diphtheria and the Dick test in scarlet fever it was possible to divide a school community into the safe and the unsafe, and the latter into the susceptible and the dangerous. The safe individuals might be released, although kept under observation, and the unsafe should be immunized. In diphtheria it was desirable to combine passive and active immunization. Duration of passive immunity produced by scarlet fever antitoxin rarely exceeded 10 to 14 days. Active immunization against scarlet fever by multiple skin test doses of toxin was a lengthy and cumbersome process, and duration of active immunity was uncertain.

Dr. A. W. DOWNIE, discussing whooping-cough, said that in active immunization for pertussis the prophylactic vaccines generally used were simple preparations of the dead bacteria. General opinion seemed to be that vaccines were not of much value in the treatment of the disease once the clinical signs had appeared. In one of the first large-scale experiments made in the use of whooping-cough vaccines the vaccine was shown not to protect completely against infection, but the severity of the disease was very much less than in the uninoculated groups, and that had been the general experience. Recently the usual doses of pertussis vaccine were given to a group of children under 3 months of age and to a similar group from 3 to 6 months. There was no harmful effect, and antibody response was satisfactory, though not so good in these younger children as it was at a rather later age. In Denmark vaccine prophylaxis was practised from the age of 1 month. Dr. R. E. SMITH described the abandonment of mass quarantine at Rugby under certain precautions. No quarantine was observed in the case of a number of infections, including measles, rubella, mumps, whooping-cough, scarlet fever, and diphtheria. Of 128 boys who, over a period of seven years, had been in contact with cases, only two had contracted the disease to which they had been exposed, and in no case did any epidemic arise. One important prophylactic measure in individuals susceptible to bronchitis, who might go down with bronchopneumonia if they had measles, was breathing exercises. Another measure was the routine taking of temperatures of those who had been exposed. The greatest of all prophylactics was the fortification of the general health, attention to nutrition, and general environmental well-being.

During some further discussion Dr. A. I. SIMEY said that in scarlet fever immunization they were attacking only the erythrogenic toxin and were taking no account of the organism itself, but it should be realized that the scarlet fever was only one phase of the attack of the scarlet fever organism. Convalescent serum was probably the most valuable form of serum for measles. Dr. W. H. BRADLEY, speaking of tests for vaccines, proprietary and otherwise, said that these were always proceeding. A great deal of assistance would be given to the control of infections if there were closer co-operation—by which he meant intimate daily conversation—between the medical officer of health and the general practitioner, to whom the latest information regarding prophylactic methods was not always made available. Dr. R. A. O'BRIEN said that as long as the policy of decentralization went on co-operative research was made difficult. He hoped that a laboratory and information service would become a prominent feature of the public health service so that people in any one area would be acquainted with what was happening elsewhere.

PLACENTAL POLYPUS

At a recent meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland there was a demonstration and discussion of cases of placental polypus.

Dr. BETHEL SOLOMONS showed a specimen of placental polypus in a patient, aged 36, who had had eleven children, the youngest eleven months previously. She was admitted to

hospital in Sept., 1942. She had nursed her baby, and menstruation had started again four months earlier; since July bleeding had been more or less continuous. Examination revealed a rather soft, slightly enlarged uterus. The patient was in such a collapsed state on admission that she was given a blood transfusion; as a temporary measure intravenous saline was administered and the uterus plugged. In view of her condition it was decided that conservative measures would be dangerous, and total hysterectomy was performed. The pathological report by Dr. Bourke was as follows: "Tumour—this is a simple placental polypus with necrotic chorionic villi all through it. At one or two places on the surface the villi appear to be covered with living cells. The endometrium in the roughened area above the polypus shows much blood in the interstitial tissue, with large areas of hyaline degeneration around the blood vessels. There is also evidence of early adenomyosis." Dr. Solomons said he believed the condition was very rare; in fact, one of those that he had taught about but had seldom seen; he could find no records of its frequency. The appearance of the specimen was consistent with the description of Novak: he suggested that profuse haemorrhage might occur from rupture of the large venous sinuses at the base of the polypus, and recommended the pathologist to take care to make a differential diagnosis from chorion epithelioma. In this case no history could be obtained of a definite abortion or of retained placenta at the last birth.

Dr. D. J. CANNON showed a case of uterine placental polypus which was associated with bleeding so severe that a transfusion had to be given before operation. He said that curettage revealed a normal endometrium. When the uterus was split after a supravaginal hysterectomy the appearance of the polypus resembled so closely that of a malignant polypus that he decided to remove the cervix and both ovaries. The patient made an uneventful recovery. The polypus showed microscopical evidence of chorionic villi.

The PRESIDENT (Dr. Ninian Falkiner) said he thought a cause of placental polypi was retained placental tissue after confinement. It was fairly common for part of a placenta to remain *in utero* without this being recognized at the time. It might give rise to haemorrhage, and during treatment the placental tissue might be removed. A number of patients went through a period without undue loss and afterwards placental polypi developed. Chorionic tissue became absorbed, but the blood vessels at the base of the cotyledon seemed to remain in the same position. He asked Dr. Solomons how long after delivery his patient had come for treatment. Dr. Cannon had stressed that the condition was diagnosed at operation, but surely diagnosis in these cases should be made not when the abdomen was open but by curettage. It was quite easy as a rule to get a bit of the polypus, and the presence of villi would indicate the diagnosis at once. The pathologist would have no difficulty in stating if the villi were, microscopically, those which were found with chorion epithelioma. Dr. J. F. CUNNINGHAM said the reason for the lack of statistics for placental polypus was that it was such a rare condition. He thought he had seen one case 5 months after delivery, and described the symptoms and the treatment he had given for the severe bleeding. He performed a total hysterectomy and gave a blood transfusion. On examination the uterus was empty and there was a large sinus. Dr. J. O. E. APTHORP asked if Dr. Solomons and Dr. Cannon did not think the term "uterine polypus" was wrong and misleading. Both cases showed evidence of actively growing tissue. If a bit of placenta was left behind it was no different from any other foreign body; therefore it was not actively growing. The term should be changed.

In reply Dr. BETHEL SOLOMONS pointed out that if there was any doubt as to malignancy, a total hysterectomy should be done. "Polypus" was a better word than "polyp." Curettings might easily be negative, as they were in his case. The last baby was born eleven months previously; the patient lactated for seven months, and then the bleeding started and was nearly continuous. Dr. CANNON stated that his two cases were curetted and both were negative; it was, therefore, very difficult to make a diagnosis by curettage. He performed a supravaginal hysterectomy in the first case and a total in the second. There was, according to Dr. O'Kelly, no evidence of inflammation of the tubes in the second case.

Correspondence

Anaesthesia for Laryngofissure

SIR,—Dr. C. B. Lewis has described (Feb. 6, p. 162) a method of anaesthesia for laryngofissure. He says that the object of this technique is to provide safe anaesthesia for cases of laryngofissure without a tracheotomy and its accompanying disadvantages, and that in eight cases there have been no post-operative chest complications. It is difficult to conceive a more perilous procedure, which runs counter to all the teaching and experience of the late Sir StClair Thomson, and the series of eight cases shows how far it is possible to encroach on the margin of safety which Nature has provided without incurring a disaster. The prejudice against temporary tracheotomy, which isolates the field of operation from the lungs, provides a quiet anaesthesia with no possibility of respiratory obstruction, provides, too, a valuable safeguard in the uncommon but alarming event of post-operative haemorrhage, and is much less likely to cause bronchitis than the insult which Dr. Lewis offers to the trachea, is difficult to understand. It transforms a most dangerous operation into a safe one, and all these advantages Dr. Lewis is prepared to abandon in order to substitute the complicated procedure which he describes. A No. 14 catheter is passed through the larynx without touching the growth, a feat which calls for a dexterity which few laryngologists would claim but must excite their envy. The method of inducing and maintaining anaesthesia is the one most liable to provoke bleeding and thereby both hamper the operation and endanger the life of the patient, and explains why there is afterwards resort to the inflatable cuff which fills the larynx. This is only a modification of Hahn's tube, which was useful in its own day, but was tried, found wanting, and abandoned before the turn of the last century. In any case the control of haemorrhage is no part of the duties of the anaesthetist, but he may be expected to refrain from doing anything to excite it.

However, the least excusable part of the procedure is the administration of morphine or its derivatives both before and after the operation. The patient depends for his continued existence on his ability to cough as soon as the operation is completed, and both by his manipulations and administrations Dr. Lewis seeks to deprive him of this physiological need. This may be novel but it does not sound like progress, and it will be interesting to learn if Dr. Lewis proceeds from eight cases to twenty without reconsidering his methods.—I am, etc.,

London. LIONEL COLLEDGE.

A Member Resigns

SIR,—Your very definite disclaimer (Jan. 30, p. 135) of any policy against publishing letters which conflict with "high British Medical Association policy" will no doubt clear the ground for a fresh discussion of the future of medical practice in this country. It has seemed strange to me that, at a time when, following Sir William Beveridge's remark in his recent report that it may not appear worth while to preserve private practice, there has been widespread discussion of the implications of that remark and of the implications of the interim report of the Medical Planning Commission, so little of this discussion has appeared in the correspondence columns of the *B.M.J.* As a result of contact with various doctors in this country I am able to testify that the belief that there is such a policy as your correspondent suggested is very widespread. It is a fact that numbers of doctors have refrained from writing to the *Journal* because of that belief; and that may explain the fact that your correspondence columns do not reflect the intense interest in, not to say anxiety about, the future of medical practice.

While you disclaim any considerable censorship of letters, you do not deny what I would consider the most important allegation made in your correspondent's letter—the existence of a "high British Medical Association policy." I think your correspondent was referring to another belief, which is also widely held, that a majority of higher or more central B.M.A. officials are themselves in favour of a planned medical service—"planned" being largely the present-day interpretation of

socialized or nationalized medicine—and that such officials are more concerned with putting over their views than in ascertaining and making effective the wishes of the majority of members of the B.M.A. without coercing any dissentient minority. I do not think this suggestion is altogether disposed of by any of the specific answers made in your editorial.

However, proceeding on the assumption that the B.M.A. is a purely representative body, and that it has no vested interests in a profound modification of the organization and functioning of the profession such as is implied in planning, and that its officials are really concerned to discover the views of the members they represent and to give effect to those views, I may, perhaps, be permitted to initiate some further discussion on the future of medical practice by an endeavour briefly to clarify the situation, as I see it.

1. The basic assumption appears to be that the medical profession is not giving satisfaction to the public at the present time. If it were, of course, there would be no need or justification for any alteration. Let us see what this assumption amounts to. In the first place, as things are, a patient goes to a doctor because he is not satisfied with the state of his health. If the cause of this dissatisfaction is one of a large majority of conditions, any doctor will be able to tender the advice or administer the treatment appropriate to the condition. If, however, the condition is beyond the competence of this doctor, he may either refer the patient to a colleague, of whose ability to render the necessary service he is aware, or he may send him to a hospital. This procedure, so far as I am aware, is perfectly acceptable to the patient, but it is not available to everyone, because many patients cannot "afford" to go to a private doctor—that is to say, it is not to the service which they might obtain but to the cost of it that they object. The short approach to this problem is to ask whether the medical profession, as at present organized, is unable to supply a satisfactory service within the limits of present knowledge and technique to any patient to whom expense is no consideration. I think it is undeniable that the answer to this question shows that the cause of such dissatisfaction as exists is simply due to the fact that full medical attention is not available to everyone, because everyone is not in a position to meet the cost of it. It is the availability of medical attention and not the organization of the profession which underlies dissatisfaction.

2. This situation may mean (*a*) that the whole amount of money available for medical services is too little; or (*b*) that there is sufficient money but that it is maldistributed; or (*c*) that there is too much money, and that some of what goes at present to doctors should be diverted to some other purpose, such as paying the costs of administration of a "planned" service, or to creating "funds," or to reducing public indebtedness. An analysis of these questions cannot be undertaken here, but certain facts may be pointed out. One is that an average yearly contribution of £2 10s. per head of the population would provide doctors with an average income of approximately £1,700 per annum, and that the cost of smoking is at least £10 per annum to a moderate smoker. Another is that, despite the other demands of war, enormous sums of money have been spent on increased hospital accommodation. The war has shown that money can be provided at at least 30 times the rate at which it was provided during peace.

3. The proposal which is being pressed forward, from at first sight curiously diverse sources, with extraordinary resources of propaganda, is that to meet the lack of *availability* of medical services, which is due to a lack of money, the *organization* of the profession should be altered. This is just as if there were no organizations conducting car insurance, and because some owners of cars could not meet the cost of repairs the only suggestion put forward was that the Government should take over all motor mechanics and run them from Whitehall, the public, including the mechanics, being taxed to meet the general expense of paying both mechanics and the bureaucrats, and of printing and posting the plethora of forms and returns that seem to be an increasing accompaniment of Government activity.

4. A hierarchical and authoritarian organization of the profession seems to appeal to some members of it and to appal others. Now, whether the dissentients are in a minority, which I very much doubt, or otherwise, it is not very democratic to force them to subjection to a system which they feel stultifies personal initiative and responsibility. If the monetary difficulty of availability were solved first, as it ought to be, the authoritarians could get together and work any system they liked and elect or hire any "bosses" they liked; or else take jobs in the permanent armed Forces or public health departments or other Government-controlled organizations, while the individualists could continue with that private practice which Sir William Beveridge suggests may not be worth preserving, but which those who can afford it seem to prefer. In any case, I think it is incumbent on those advocating drastic change to show that the profession as at present organized is unable to provide full and adequate medical treatment where no question of payment obtrudes before the whole profession is handed over to a legalized system enforced with all the sanctions available to a Government.

To summarize the whole matter: it appears to be the case that a situation of some dissatisfaction arising from monetary difficulties of access to existing medical services is being utilized to create a demand for the "planning" or "socialization" of medicine to the practical exclusion of other methods of dealing with the difficulty. Other methods, which preserve the existing organization of the profession and leave intact personal initiative and responsibility, exist and are in operation in various parts of the world. In that connexion, I think a lead from the *B.M.J.* in publishing or republishing such schemes and possibly organizing small-scale experiments in suitable localities would be valuable before the profession is plunged wholesale into a system of which it has had no experience, which is only tenuously, if at all, related to the situation which causes the difficulty, and from which we would probably be unable to escape if the results were unsatisfactory.—I am, etc.,

London. BRYAN W. MONAHAN.

Dietetics of Pregnancy

SIR,—Mr. R. B. Fisher (Jan. 30, p. 144) purports to quote the conclusions we reached in a paper published in the *Journal* of May 16, 1942 (p. 605). He begins by grossly misquoting us.

We found: (1) that in eclampsia the amount of vitamin B_1 excreted in the urine on admission to hospital is significantly lower than in normal pregnancy; and (2) that the concentration of vitamin B_1 in the placenta is also significantly below that of the placenta from normal cases. In our paper we were at particular pains to point out that none of the four other clinical subdivisions of toxaemia (hypertension, oedema, hyperemesis, pre-eclampsia) differed significantly from the normal group (who themselves were excreting abnormally little vitamin B_1). Notwithstanding this careful differentiation, Mr. Fisher refers to our findings as applying to toxaemic patients in general.

Having distorted the careful clinical and statistical differentiation we made between the eclamptic and the other toxaemic groups, he went on to question "the qualifications of your leader writer for the critical appraisal of quantitative data." He himself appears unable to appreciate the qualitative differences that we were at pains to stress. We have established a deficiency of vitamin B_1—to whatever cause it may be due—in the urine and placenta of eclamptic patients, and therefore suggested, as we still believe, that vitamin B_1 might be beneficial to such patients. Mr. Fisher, cloistered as he is in the home of lost causes, would delay any such treatment until all other biochemical abnormalities are identified and can be corrected.—We are, etc.,

W. C. W. NIXON.
M. D. WRIGHT.
London, W.1. E. C. FIELLER.

Phlyctenular Ophthalmia

SIR,—Mr. Arnold Sorsby's careful analysis of this condition, referred to in the annotation in the *Journal* of Sept. 26, 1942 (p. 373), is puzzling to Australians. Phlyctenular ophthalmia was a very common condition years ago, and met with almost entirely in girls who seemed to live largely on tea and bread-and-butter. Anyone now would be hard put to it to find a case. I regarded it as a deficiency disease and treated it with a full diet. Tubercle has greatly diminished, but is still far from absent. It is impossible to disregard the evidence Mr. Sorsby advances, but the facts in Australia are equally cogent.—I am, etc.,

Melbourne. JAMES W. BARRETT.

Weil's Disease

SIR,—With reference to the article by Capt. S. Varadi (Jan. 30, p. 126) I think it of some importance to point out that it is highly probable that more cases of this disease will be diagnosed shortly. In one patient with a mild form of Weil's disease in our hospital recently the diagnosis was proved by the agglutination test performed by Dr. Bedson in Epping Hospital.

The aetiology and epidemiology are well known, also the clinical symptoms, with fever, sleeplessness, stiff facial expression, icteric coloration of skin and sclerotics, somewhat resembling that in acute atrophy of the liver, pains and hypersensitivity of muscles, and irregular action of bowels. It should

be noted that the jaundice does not appear immediately after the onset of the disease, but a few days later, sometimes after the temperature has become subfebrile or normal again, as in our case. Prophylaxis is of great importance, as it is known that in the last war an increase in the number of cases was noted (Uhlenhuth and Fromme), though contact infection was doubtless very rare. The saying "Where there are no rats there is no Weil's disease" is well known, but mice could also be responsible for spreading the disease. Water and stores contaminated with the urine of rats are infectious; therefore the fight against rats and mice is the most important point in prophylaxis. Whether ordinary infectious hepatitis in wartime is allied to morbus Weil cannot be proved, but should be borne in mind, and every case of illness with jaundice and high fever should be suspect and the agglutination test should be performed. Only in this way can the disease be diagnosed and cases properly looked after.—I am, etc.,

German Hospital, E.8. K. BLUM.

Spina Bifida

SIR,—In Dr. A. Fry's interesting account of a spina bifida in binovular twins (Jan. 30, p. 131) he refers to the familial incidence of this abnormality, and quotes instances by Butler-Smythe (1889), who reports three cases in the same family, and by Pybus (1921), where four children in a family were affected. The mother of a case I operated upon in 1938, unfortunately unsuccessfully, gave the following remarkable history: 1929, Female child born with spina bifida; lived 30 minutes. 1930, Male child with spina bifida; lived 36 hours. 1932, Male child with spina bifida and cleft palate; lived 3 days. 1933, Normal female child, alive and well. 1934, Male child with spina bifida; lived 7 weeks. 1936, Normal female child, alive and well. 1938, Female child with spina bifida; operated on; lived 2½ months. This is the child to which I referred.—I am, etc.,

London, E.3. J. R. M. WHIGHAM.

CO_2 Absorption Technique

SIR,—The subject of CO_2 absorption technique is again brought up in the *Journal* of Jan. 30. Each time a new modification is introduced more elaborate and expensive than the last. I do not doubt the working efficiency of such machines, but from the practical side of administering gas-oxygen-ether certain difficulties invariably arise.

The crux of absorber technique is mentioned by Major J. Montgomerie on p. 130: "The composition of the gas mixture tends to change slowly during the course of the anaesthesia . . . a fine balance is struck between anoxia and the patient becoming 'lighter.'" These remarks, in my experience, are only too true. The absorber method tends to prevent a level plane of anaesthesia, which is important from the patient's point of view and the surgeon's. As Major Montgomerie says: "Owing to the diffusibility of N_2O . . . about 500 c.cm. a minute is required for maintenance." The basal oxygen flow is usually about 250 c.cm. per minute, so that the oxygen : nitrous oxide ratio is not that of surgical anaesthesia.

The well-known advantages of the CO_2 absorber remain with any efficient machine—namely, water-vapour retention and quiet respiration. The saving of gas is, of course, offset by the cost of the machine and soda-lime.—I am, etc.,

London, W.3. E. V. SLAUGHTER.

The Oxford Ether Vaporizer

SIR,—Through the generosity of Lord Nuffield and the kind recommendation of Prof. Macintosh I have had placed at my disposal at the Wellhouse Hospital, Barnet, the Oxford ether vaporizer. During the last few weeks I have anaesthetized patients by means of this apparatus for most of the ordinary operations of surgery (except intrathoracic operations), and have come to some very definite conclusions.

1. It is the first ether apparatus by means of which a really light ether anaesthesia can easily be administered.
2. There is no difficulty in giving a deep ether anaesthetic and obtaining perfect relaxation.
3. However deep or however light the anaesthetic, the patient always gets enough air and always remains a good colour.
4. Very small quantities of ether are used and there is no waste ether to make the atmosphere of the theatre unpleasant.
5. The constant unvarying percentage of ether given off at any given setting of the indicator presents great advantages.
6. Endotracheal or any type of inhalation anaesthesia can be administered.
7. Most important of all, the use of the machine is readily acquired by students after most brief instruction, and the unpractised anaesthetist can, with very little experience indeed, give a satisfactory anaesthetic.
8. The Oxford vaporizer appears to be the safest way of giving ether.

After twenty years as a general practitioner anaesthetist I can speak with some authority on anaesthesia in general practice, and I consider the Oxford vaporizer the apparatus of choice for the general practitioner anaesthetist. I note with some regret that this machine is not yet in use in many teaching hospitals, and I hope that no time will be lost in introducing it into all hospitals where students are taught or where the occasional anaesthetist has to practise. The expert professional anaesthetist can obtain excellent results by many techniques and from the use of many agents, but between him and the general practitioner anaesthetist, however gifted the latter may be, there is a great gulf fixed. This gulf can in nowise be crossed, and it would be very much in the public interest if this truth were to be understood and admitted, and if many of the newer methods of anaesthesia were to be confined exclusively to the full-time professional. The Oxford vaporizer, however, offers to the general practitioner an extremely safe and simple way of giving anaesthetics on those many occasions when he is called upon to do so.—I am, etc.,

New Barnet. JOHN ELAM.

Diphtheria during Immunization

SIR,—May I, as one concerned with diphtheria cases in hospital, comment on the medical memorandum under the above title submitted by Dr. G. A. Garrett (Jan. 23, p. 102).

The event recorded is not unusual; many similar cases could be cited from fever hospital records for the last year or two, and it is easy to see why. When prophylactic injections are given to large numbers of non-immune persons in a community wherein diphtheria is still endemic, the conjunction of the two events—viz., an injection and an attack of diphtheria—in the same person must inevitably occur sooner or later; it is particularly likely to occur if immunization is postponed until just after a child's first entry to school. The diphtheria may appear soon after the prophylactic injection, but it may equally well precede the date proposed for an injection. Of course, in the former order the double event is well remembered; in the latter, it is quickly forgotten.

A mild diphtheria, therefore, need not be styled a "phenomenon" merely because it occurs soon after a prophylactic injection, and it is equally unnecessary to postulate any causal connexion between one and the other. I firmly oppose the suggestion that the taking of "swabs" from healthy throats (or noses) should be a preliminary to immunization. The swabbing of healthy persons is rarely justifiable; certainly, the occurrence of "diphtheria during immunization" furnishes no indication for the practice; far from being "a valuable procedure," it would be utterly useless.

As for the recommendation to "administer antitoxin," I am not aware of any evidence to show that diphtheria antitoxin is of any help in ridding diphtheria carriers of their germs, and, presumably, antitoxin given shortly before the prophylactic substance would nullify the antigenic property of the latter and defeat the end in view. Let children be immunized at the proper time—namely, on completion of their first year—then we shall not hear much about "diphtheria during immunization."—I am, etc.,

Cottingham, E. Yorks. NIGEL W. ROBERTS.

SIR,—The lay press has quoted freely from Dr. G. A. Garrett's medical memorandum on diphtheria during immunization (Jan. 23, p. 102). This method, as one paper says, "of providing opponents of immunization with an unexpected argument in their favour" undoubtedly calls for more careful choice of articles for publication in the *B.M.J.* Was there any adequate justification for publishing such an article when there is a perfectly logical and simple explanation for the onset of non-clinical diphtheria (I should really diagnose the case described as tonsillitis) after one dose of A.P.T.?

The following facts appear worth recording in view of the wide publicity afforded Dr. Garrett's untimely communication.

1. It is now recognized that one dose of 0.2 c.cm. A.P.T. does not immunize a child against diphtheria.
2. One dose of 0.2 c.cm. A.P.T. has no influence or effect on a carrier of K.L.B.
3. Dr. Garrett does not state whether there was any contact or possible contact with diphtheria between the time of injection and the onset of symptoms of tonsillitis.
4. He does not state whether the child had been Schick-tested or swabbed before the single injection.
5. The symptoms (of tonsillitis) cleared up with the treatment for tonsillitis.
6. No information is given as to whether virulence tests were carried out.
7. No information is given about further swabs—i.e., to check up on the first (which might have been an error) and to establish whether the child was a carrier.
8. Finally, many of us have seen cases where all signs and symptoms have cleared up without antitoxin and the children were quite well by the time a positive swab was returned.

I have no doubt Dr. Garrett was well meaning in his communication and probably never foresaw what must now be to him most unwelcome publicity.—I am, etc.,

Ramsey, Isle of Man. DANIEL ROBERTSON.

Pernicious Anaemia of Pregnancy

SIR,—In your excellent leading article on the above (Jan. 23, p. 105) you fail to find convincing evidence that whole liver by mouth is sometimes more effective in treatment than parenteral extracts. It was perhaps not made sufficiently clear in the study of 23 Newcastle cases which I made with Dr. T. C. Studdert (*Lancet*, 1942, **2**, 332) that five cases which responded to raw liver had already failed to show any significant response to normal diet plus marmite and refined and crude liver extracts. This finding was indeed our chief reason for publishing the series, and has since been confirmed in other cases by personal communications from other workers in this field.

It is unlikely that this response can be due to the amount of iron contained in the raw liver, and it would appear to be due to some additional haemopoietic factor. The same effect of whole liver is very occasionally seen in cases of otherwise typical true pernicious anaemia resistant to parenteral extracts.—I am, etc.,

H. G. MILLER,
Flight Lieutenant, R.A.F.V.R.

Military Psychiatry

SIR,—Dr. Richard Eager (Jan. 23, p. 111) writes, "My contention is that if more serious attention were given to nervous and mental manifestations before enlistment and more cases presenting these symptoms were rejected instead of being suspected of being malingerers, a great deal of time, trouble, and expense would be saved." I have had experience on a medical board during the first three years of its existence. A board of a chairman and three members has to examine 30 recruits in three hours, but this time is often exceeded. This does not give time for a lengthy inquiry into a man's mental condition, still less to solve the difficult problem of how he will react to the entirely different surroundings in the Services. Contrast this with the conditions in which the military psychiatrist works. The recruit has had weeks and often months in the ranks when he is under military and medical observation before he comes before the psychiatrist. This most important information is provided for the latter, but medical boards have to do without it. Even with this great advantage, does the psychiatrist decide the recruit's fitness at the end of, say, ten minutes, or does he keep him under observation for a few days?

Some neurotic cases are manufactured by the Services. In the last war I had charge of a number of semi-convalescents, among whom was a lad of about 20. The Army had sent him into hospital, obviously to get rid of him. He had been in other wards before reaching the semi-convalescents. Inquiry showed that he had been scolded and treated as an outcast in the other wards. Information of his treatment in the Army was lacking; asking the lad was obviously unwise. His history was that he was cantankerous, disobedient, and lazy. When I saw him he was dejected, sullen, and perverse. He was put in a section in charge of a V.A.D. of exceptional ability. She treated him as a human being, and soon transformed him into a bright cheerful lad willing to do any work which came along. His condition was clearly due to the badgering and bullying he had had. What subsequently became of him I do not know, as I was moved elsewhere. In the same war I was called to a Royal Naval establishment to see a sea-scout (employed as a messenger), aged about 16, reported "to have gone off his head." He was in a state of hysteria, severe enough to give colour to the non-medical diagnosis. I knew him and his family to be intelligent and free from any nervous instability. I diagnosed correctly that his condition was due to bullying by a naval officer. Had this bullying continued, the lad would have become a nervous wreck. The position was explained to the naval officer and the lad had no recurrence.

One hears that there is no harsh treatment in the Services now. One has had only to be where training is going on to know that this is not the universal rule. Discrimination is often wanting; some men do not understand anything but harsh treatment, but it is fatal for others. A sensitive lad who has led a sheltered life—some are very sheltered now—though perfectly fit at his medical examination, when pitchforked into the rough and tumble of the Services readily develops a neurosis unless carefully handled. Further, if a man wants to get out of the Service nowadays he has only to be sufficiently troublesome to get his discharge, and the medical board is blamed for passing him.

Nocturnal enuresis is a difficulty. There is no physical sign, and even if the recruit brought his wet bed with him it would not be proof of genuine enuresis. If a medical board began asking every recruit whether he wetted his bed it would not be long before every shirker came with that story. Reliance cannot be placed on parents' statements. In one instance a mother wrote to a medical board saying her son, due for examination, was a bed-wetter and asking that he should not be told. The son, however, stoutly denied the statement.

A problem which confronts a medical board occasionally is this. A man tries to get exemption as a conscientious objector and fails. He is determined not to go into the Service. At his medical board he is obstructive. Examination shows he is fit. (This is not an imaginary case.) Is the medical board to pass him fit when it is obvious he will make himself such a nuisance that he will be discharged from the Service, or to pass him as unfit and let him rejoice while other men fight for him and be an example of how to "work it" to other shirkers? It is likely that a few unsuitable cases are passed in fit, but to expect medical boards to exclude every recruit who may break down under Service conditions is to demand the impossible.—I am, etc.,

E. P. DICKIN.

Thread for Sutures in Tonsillectomy

SIR,—In the *Archives of Otolaryngology* for November, 1942, A. J. Podboy recommends the use of thread for sutures in tonsillectomy. I have been using this material in my tonsillectomy cases for the past two years, and I find that it has no disadvantages and is in fact easier to handle than catgut. It is readily sterilized by boiling for twenty minutes. A tube of catgut costs 1s. 6d. and provides material for four or five ligatures. A reel of thread costs 1s. and will make about 300 ligatures. General use of this suture material in tonsillectomies would result in great economy.—I am, etc.,

Torquay. W. H. BRADBEER.

Radiological Diagnosis of Disproportion

SIR,—May I endorse all that Prof. J. Chassar Moir said in the discussion on the above subject at the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine (Jan. 30, p. 142). It is now eight years since my original paper on cephalometry was read at the Royal Society of Medicine in March, 1935, and in that time most of the points made have passed from ridicule almost to the blessing of respectability. There are still two points, however, which in my view do not receive enough attention.

1. *The Plastic Head.*—Any foetal head with a biparietal diameter of 3.7 inches or less will be plastic and will mould easily and safely to conform to moderate degrees of contraction, whereas a head with a diameter of over 3.75 inches may be very rigid. There is positively no clinical means of recognizing this point at which certainty of safe delivery changes to dangerous uncertainty. Nothing has altered my conviction that induction of labour by rupture of membranes should be performed when the biparietal diameter reaches this point (3.65 inches) (*a*) in all cases of moderate contraction of inlet or outlet and (*b*) in breech cases when attempts at version have failed. This measurement will ensure (1) a plastic head; (2) a body which is not unduly large; (3) a baby which can be easily and safely reared.

2. *The Interischial Diameter.*—This measurement, between the tips of the ischial spines, shows at once if there be any contraction of the outlet. It is easily made with sufficient accuracy directly from a film taken for pelvimetry in the standard sitting position. With a focus-film distance of 30 inches, a deduction of half an inch should be made for correction of magnification. This measurement in a normal pelvis is about 4.5 inches, and anything below 4 inches gives warning of serious difficulties ahead, and full consideration should be given to this point when deciding in favour of Caesarean section or induction. All the necessary information can be obtained from two films by the technique described by me, whether the head be in the pelvis or in the fundus.—I am, etc.,

Totnes, Devon. NORMAN REECE.

Stilboestrol for Immature Infants

SIR,—Drs. W. R. F. Collis and M. A. Majekodunmi (Jan. 9, p. 31) recommend thyroid in the treatment of premature infants. About 2½ years ago I started using stilboestrol instead of thyroid and found that it maintained the body temperature quite as well as thyroid but had a much greater effect in stimulating growth. I have had few opportunities of using it on premature infants, but the results were so encouraging that I started giving it to full-time immature infants. The results were immediate, a gain of 6 oz. a week being often obtained where the previous rate had been 1 or 2 oz. a week.

The usual dose I used was 1/6 mg. once or twice daily, kept up for 2 or 3 weeks until the gain had been well established. No ill effects were seen except in one case, a mongol of about 3 months, where the weight had been stationary for some weeks. There was a gain of 8 oz. the first week, but after that the infant vomited with even the smallest dose.—I am, etc.,

London, W.14. F. N. HOLDEN.

Treatment of Small-pox

SIR,—I was particularly interested in Dr. J. T. Neech's letter (Jan. 23, p. 113) regarding the above as in 1882 I had a severe attack of varicella and my father "painted" the worst of the spots, which gave me relief from itching. Years later he told me it was pure carbolic acid, and this we used successfully in an isolated case of modified small-pox 20 years afterwards. He had been told of this when house-surgeon to Prof. Spence in Edinburgh.—I am, etc.,

Hatfield. ARTHUR F. PERIGAL.

X-ray Apparatus at Health Centres

SIR,—We ought to determine what will be the function, size, and location of the health centres before we discuss whether *x*-ray apparatus ought to be located in them. Taking a realistic view of the matter, I believe that the present doctors' surgeries will be gradually transformed into health centres. About 5 or 6 such centres will be sufficient for a town of 50,000 persons. The centres will be placed in various parts of the town, so that the doctors may be near the homes of their patients.

I believe it would be disastrous to set up *x*-ray apparatus in these "district health centres." But in larger towns and cities it is probable that a central health diagnostic clinic or centre will be required. This central clinic will develop out of, and perhaps in relation to, existing hospital out-patient departments. Every branch of hygiene, medicine, and surgery will be represented on its specialist staff. It is in the central clinic and not in the peripheral health centres that mass radiography and all other forms of radiography should be carried out. If, however, no such central clinics are established, then it will be essential to place an *x*-ray apparatus and a radiographer in one or other of the primary health centres in every considerable town or country area.—I am, etc.,

Worcester. HOWARD E. COLLIER.

Private Fees of Salaried Medical Officers

SIR,—Much attention is now being directed to the conditions of medical practice after the war. I venture, therefore, to raise a point which affects the conditions of employment of medical practitioners working in hospitals for a whole-time salary. It is the practice in hospitals administered by certain authorities that all fees paid to their whole-time salaried medical officers for incidental services are surrendered to the hospital authority. The services in question are the writing of reports for insurance companies or legal firms, the attendance at coroners' or other courts, and the signing of cremation certificates.

There are, however, other hospital authorities who lay no claim to these fees on the ground that they are fees paid to the medical practitioner as a reward for services which lie outside the scope of his routine medical duties, and which are frequently performed in his spare time. I believe that this latter attitude is the correct approach to the problem, and that it is a bad principle for a hospital authority to adopt the attitude that no man on a whole-time salary must in any circumstances take a fee, even though he has had to take on work outside that for which he receives his salary. In this belief I seem to be supported by the Ministry of Health, who apparently permits its whole-time E.M.S. officers who are examiners to the Conjoint Board and other examining bodies to retain their examining fees.

It is possible that this contention would be shared by a majority of the medical profession, and if put forward persuasively by the B.M.A. would be conceded by those hospital authorities who at present take the opposite view. If conceded, it would benefit principally the lower-salaried junior medical officers, who, in my opinion, have always done the bulk of the work in any hospital service, and who will probably continue to do so, even after the war.—I am, etc.,

London, S.E.1. T. W. MIMPRISS.

"Calorie Control" Diabetic Diet

SIR,—The juxtaposition of Dr. A. C. Crooke's and my letters (Jan. 30. p. 143) emphasizes the complete divergence of our beliefs on the above subject. He answers some of my questions, avoids others, and asks some in return, so perhaps you will permit a reply, final so far as I am concerned.

I studied Prof. Ellis's article in 1934 which described temporary improvement in a few diabetics fed on 400 to 600 g. glucose with *hourly* insulin injections, the timing of the latter I am sure producing the improvement. When this was stopped complete relapse ensued, and I can see no relevance between this experiment and the practical daily problems of diet and insulin, and would be surprised if Prof. Ellis sponsors his experiments as supporting the principle of the new diet. Does he?

We disagree fundamentally on the effect of C. or bacon and egg (I like both) for breakfast. Insulin lowers blood sugar; C. raises it and balances insulin action; protein and fat have no such action for hours, if at all. I and my patients would have (and some have had) intense hypoglycaemia if, omitting toast or porridge, we substituted equicalorie bacon and egg (pre-war). Dr. Crooke states that this does not happen to his patients, but publishes no detail to prove it, and I could certainly convince him should he agree to experiment on me or my patients. It appears I must challenge him, and I do, to give himself 20 to 30 units of insulin and to compare the effect of combating the resultant hypoglycaemia with bacon and eggs or sugar, porridge, or bread. I must conclude that, when his patients escape hypoglycaemia on omitting carbohydrate, they must be running such high blood sugars that this buffers the insulin when no C. is eaten—a common enough state in many patients, my own included.

It is no argument for the new diet to claim that 528 patients have done well on it, because, having no scales, they could not apply the dangerous principle to which I object. The cases I have seen supposedly on the diet were not, as Dr. Crooke suggests, long-standing confirmed high P. & F. addicts, but new cases. Furthermore, he contrasts the welfare of his patients

on the typical new diet (260 C., 70 P., 80 F.) and the old (230 C., 90 P., 80 F.), both roughly 2,000 calories, and in these there is no practical difference. I cannot see any real change from the diets commonly used by the late Dr. Leyton at the London.

Dr. Crooke asks if I provide scales for my patients to weigh my diets—a sting in this! Unless I can, or know the patient has a scale, I never prescribe a weighed diet and consequently have for two years treated new patients almost entirely on my simple "unweighed" diet and bread measure, published by Messrs. H. K. Lewis and Co. in 1931. It takes no heed of calories, but regulates the C. to balance the insulin accurately enough, and, if Dr. Crooke does not know it, I shall gladly send him a copy.

I regret in some ways our public controversy, as it can interest only a few, may confuse many, and obscures the common interest Dr. Crooke and I have in running useful clinics for the benefit of diabetics. But I think the basal principle of his diet untrue and dangerous, and can ascribe the absence of hypoglycaemic disasters only to the fact that it has not been applied in practice by his patients.

If Dr. Crooke is unconvinced, let us have facts and arguments before experts, such as the "Carbohydrate Club," which exists and meets in London. If I am proved wrong, I am not too old to change my views, eat my diet cards, and start afresh, after public acknowledgment of my errors. I expect the same from him.—I am, etc.,

London, W.1. R. D. LAWRENCE.

Adoption of Children

SIR,—Among many other social workers we should like to endorse the views expressed in the letter from the chairman of the National Council for the Unmarried Mother and her Child (Jan. 23, p. 115) emphasizing the supreme importance of safeguarding the interests of unwanted children when arranging for their adoption, and to deprecate action being taken except through approved adoption societies. Fortunately, the Government's recent decision to put into force the Adoption of Children (Regulation) Act will go far in reducing the dangers referred to in Mrs. Fisher's letter.

We understand that the inclusion of personnel of Citizens' Advice Bureaux in the list of those who, without training and experience, have arranged adoptions is based on the action of one worker in one bureau, out of a total number of over 10,000 voluntary workers working in more than 1,000 bureaux. There is therefore no evidence, so far as these bureaux are concerned, to show that inquiries dealing with this subject are not passed on to be dealt with by experts, in accordance with one of the guiding principles of the service.—I am, etc.,

R. C. NORMAN,
Chairman, C.A.B. Central Committee,
National Council of Social Service.

Feb. 6.

Freedom and the Beveridge Report

SIR,—Dr. E. U. MacWilliam's remarks (Feb. 13, p. 200) with regard to Divisional meetings of the B.M.A. are timely, and the example given by him of a general statement of policy presented to one Divisional meeting for consideration is one with which, I feel sure, the majority of members of the B.M.A., both at home and in the Services, would be in entire agreement.

The main issue, at the present time, is whether we, as medical men, can prevail against outside pressure, and maintain our individual freedom and the liberty of the profession. It is up to all B.M.A. members to attend the meetings of their Divisions, and to make it perfectly clear to their representatives that they mean to place the freedom of doctors as individuals in the forefront of B.M.A. policy—and that these representatives have no mandate whatever for compromise on the lines of the motion printed in the *Supplement* of Feb. 13 (p. 25). To make the freedom of action of the profession dependent on whether the Government passes the Beveridge scheme *in toto* or not is monstrous. It is absolutely untrue to suggest, as some do, that a centrally controlled medical service is necessary to provide for the needs of the community. What appears to be true is that the medical profession, being independent, is looked upon with disfavour by those who are intent on liquidating free British institutions.

May we not look to the B.M.A. to uphold the freedom of medical men at this critical time?—I am, etc.,

London, N.W. BASIL L. STEELE.

Obituary

F. H. EDGEWORTH, D.Sc., M.D.

Emeritus Professor of Medicine, Bristol University

In the death of Emeritus Prof. F. H. Edgeworth, Bristol loses one of its most distinguished sons. His father was Dr. T. F. Edgeworth. Francis Henry Edgeworth was educated at Clifton College and Caius College, Cambridge. He secured a first in the Natural Sciences Tripos, and was Shuttleworth Scholar of Caius. He subsequently entered the Bristol Medical School and took his M.B., B.Ch.Cambridge in 1889. He also studied in Paris, Gottingen, London, and Dublin, taking the D.Sc.Lond. in 1903 and his M.D.Cantab. in 1908. Edgeworth was appointed assistant physician to the Bristol Royal Infirmary in 1893 and physician in 1906, holding this latter appointment until 1924, when he became an honorary consulting physician. In 1905 he was appointed professor of medicine in University College, Bristol, and later occupied the chair of medicine in the university. He was both an accomplished physician and an eminent research worker. In his clinical work he was particularly successful in the difficult art of differential diagnosis, especially in relation to diseases of the central nervous system. He was much beloved by his patients, whom he always treated with great kindness. It was a matter of supreme indifference to him whether a patient had arrived at the Royal Infirmary clothed in rags or was seen by him at his private residence arrayed in fine linen. Edgeworth was the author of numerous monographs on medicine and science, but his *magnum opus* was a volume on *The Cranial Muscles of Vertebrates*, published in 1935 by the Cambridge University Press. This book required a great deal of work, which he carried out with meticulous care.

In his relations with his fellow men he always adopted that line of conduct which appeared right to him, irrespective of whether it was to his own advantage or otherwise. He was devoted to his wife, whom he married in 1896. She became an invalid shortly after their marriage, and predeceased him in 1931. His affection for her is revealed in the words of the dedication of his great work to her: "*In memoriam uxoris meae quae mihi, ut in ceteris rebus, ita in hoc opere et socia erat et adiutrix.*" After his wife's death Edgeworth went to live at Bath, and during the "blitz" of last April was buried for some time under the ruins of his house. He bore this calamity with his usual fortitude, and referred to it as "just an incident." His death occurred at a nursing home in Bath following an operation. He leaves an only son.

O. C. M. D.

SIR STCLAIR THOMSON

Prof. GREY TURNER writes: The death of StClair Thomson leaves the profession bereft of a great personality. Of his contributions to the special branch of surgery to which he devoted himself I am not prepared to write. It was a devotion to medical history and especially the Listerian era that furnished a mutual bond. His presidential address to the Medical Society of London in 1917 dealt most delightfully with the life of its founder, John Coakley Lettsom, and was a very model of what such addresses should be. I have reread it several times and always with renewed enjoyment. But it was his association with Lord Lister, as his last house-surgeon at King's, that enabled him to speak with such great and sympathetic authority on everything that concerned that dear man. Thomson's address on his great master delivered at the Royal Society of Medicine on April 4, 1927, during the Lister Centenary celebrations, was a really wonderful occasion. It was universally applauded as an outstanding success, and I always felt that it should be read by every student of medicine. Sir StClair did provide a thousand reprints to be stored at King's so that for years to come every new student might be presented with a copy. As recently as March of last year he gave an admirable address on Lister before the students of the Medical Faculty of the University of Edinburgh. Writing to me about that time he expressed his joy because he had discovered that by standing on tiptoe looking out of his bedroom window at the Caledonian Hotel at the end of Princes Street he was just able to see the

house where Lister lived during his first Edinburgh period. Thomson was a great host, and what a delight it was to be a guest at his hospitable home in Wimpole Street! In almost his last letter he expressed regret that enemy action had driven him from London, for, as he said, "I am now an exile and a wanderer. I had looked forward to ending my days with all my books and toys around me, but there is little prospect of having a home again." The example of his advancing years was itself a great lesson, for when the handicap of deafness cut him off from the drama which he loved so well, he found compensatory interests. One of these was the ballet, though those of us who knew him best recognized that this was really a return to an old love.

PERCIVAL JOHN HAY, M.D.

Consulting Ophthalmic Surgeon, Royal Hospital, Sheffield

We announce with regret the death on Jan. 17 of Dr. P. J. Hay of Sheffield. Percival John Hay received his medical education at Edinburgh University, qualifying M.B., Ch.B. in 1901, and taking his M.D., for which he was highly commended, in 1904. He early specialized in ophthalmology, among his first appointments being that of resident surgical officer, Birmingham and Midland Eye Hospital. For a period he was ophthalmic specialist, Cambridge Hospital, Aldershot. At the time of his death he was ophthalmic surgeon to the Education Committee and the King Edward VII Hospital, Sheffield, and consulting ophthalmic surgeon, Royal Hospital, Sheffield. Dr. Hay had been a member of the B.M.A. since 1904, except for a brief period during the last war, and had been a member of the Ophthalmic Group Committee since 1929. He was honorary secretary of the Section of Ophthalmology when the Association met at Glasgow in 1922, and at the Belfast Meeting in 1937 he acted as vice-president of the same section. He was chairman of the Sheffield Division in 1936-7 and represented his constituency at the Annual Meeting at Oxford in 1936.

Among his contributions to the literature on the eye and its diseases was the Middlemore Lecture in 1929 on "Astigmatism." At the funeral, which took place at Sheffield on Jan. 21, the B.M.A. was represented by Dr. A. B. Nutt. A colleague sends the following appreciation:

The medical profession of Sheffield has suffered a great loss in the death of Percival John Hay, which has added yet another name to the list of casualties of medical men on the Home Front, for his untiring devotion to duty was directly responsible for his death. Hay was not a native of Sheffield, coming to the city just before the last war and joining the staff of the Royal Hospital in 1916, but he soon established himself in the esteem of his colleagues, who recognized in him a man of great charm, though reserved and retiring in character. He threw himself whole-heartedly into the work of the ophthalmic department of the hospital, and within a few years had built up a reputation extending far beyond the Sheffield area. His influence was felt not only in his own department; his advice and opinion, always sound and freely given, were often sought by his colleagues in matters of general administration of the medical and surgical sides of the hospital.

As an ophthalmic surgeon he was recognized as being in the first rank, and his enthusiasm was such that after the foundation of the North of England Ophthalmological Society, for which he was responsible, the meetings of that body proved so interesting that not only were they well attended by members but they attracted visitors from the ranks of general medicine and surgery. His interest in this ophthalmic child of his never waned. Year by year, whenever possible, he organized foreign tours which were recognized as invaluable educational enterprises as well as delightful social events. Though many men would have relinquished the hard work inseparable from such an arduous task as falls to the lot of the secretary of an active society he conscientiously did his full share and was still secretary at the time of his death. From 1940 to 1942 he was Master of the Oxford Ophthalmological Congress, and in 1942 was elected to the highest honour in his own branch of the profession—that of president of the Ophthalmological Society of the United Kingdom.

His death will leave a real gap in the life of the Voluntary Staff Club of Sheffield, to the founding of which he contributed not a little, being its first secretary, and he will be genuinely missed by all who knew him. He leaves an only daughter, having lost his wife early in their married life.

PRESTON KING, M.D.

The death on Jan. 29 of Dr. Preston King has removed a notable figure from Bath medical circles. Preston King received his medical education at Cambridge and St. Thomas's, qualifying M.R.C.S. and L.S.A. in 1887 and taking his M.B., B.Ch. the following year; he proceeded to the M.D. in 1891. He went to the Royal Mineral Water Hospital, Bath, in 1890 as resident medical officer, and three years later set up in practice in Gay Street. Three years later again he was appointed honorary physician to the hospital, a post which he held until 1912. He practised chiefly as a spa physician and published a book on *Bath Waters*. He was also on the staff of the Royal United Hospital as assistant physician, relinquishing that appointment in 1905 to become the institution's first radiologist with the title of "physician-in-charge of the electrical department." In 1901 he joined the City Council, was elected Mayor in 1914 and again in 1917, and Alderman in 1918.

Preston King was a pioneer in other things besides radiography. He was the first medical man in Bath to possess a self-propelled vehicle. This was an early type of steam-driven car, the passage of which up Gay Street in 1901 often meant that the thoroughfare was shrouded in fog for several minutes. Unfortunately, it blew up one day on the way to Wells, and was soon replaced by a petrol-driven car, which proved much more satisfactory and lasted many years. He was also one of the first to be initiated into the mysteries of cinematography by his friend Rudge, who was its inventor in the early part of the century. Preston King was a strong advocate of euthanasia for hopeless cases, and of vivisection of criminals condemned to death, their consent being first obtained and the death sentence commuted if the experiment itself did not prove fatal. He did not hesitate to advance these views publicly, gaining a fair measure of support but also coming in for very spirited adverse criticism. "P. K.," as he was known, was one of the kindliest of men. He had a whimsical wit, and any meeting, medical or lay, knew it was going to enjoy itself as soon as he rose to his feet. He is survived by his widow: their only son died some years ago.

HOWARD KELLY, M.D., LL.D.

Prof. GREY TURNER writes: The death of Howard Kelly of Baltimore at the ripe age of 85 recalls the early days of the Johns Hopkins Hospital, for Kelly was one of the four original heads of divisions and figures in the famous Sargent portrait of that notable staff together with his colleagues Osler, Halsted, and Welch. The picture now hangs in the Welch Memorial Library in Baltimore. But though he was only a very young man when appointed to the Chair of Gynaecology, he had already done notable work, which was perpetuated in his magnificent two-volume *Operative Gynecology* published in 1898, with those wonderful illustrations by Max Brodel which have never been surpassed. But he was not limited by any narrow devotion to his own subject, and his introduction of the simple cystoscope which bears his name opened up a large field of activity in genito-urinary work. Here again he made notable contributions, and in the days before *x*-ray examination became so reliable the use of the wax-tipped catheter for the detection of ureteral calculi was a very useful method which he developed. It ought also to be remembered that he endeavoured to extend the use of his form of cystoscope to the male and published a paper on the subject as long ago as 1898. His modification of the Mayo operation for umbilical hernia, the short rectal speculum, and "Kelly's rake" each shows his wide interest and activities. His volumes on gynaecology were followed by the large book, *Appendicitis*, published in 1905, for which he was also responsible in collaboration with Hurdon; the beauty of the illustrations in that work caused quite a sensation at the time. He was a most skilful operator, and I can never forget the impression he made when in 1905 he operated in the old Royal Infirmary in Newcastle-upon-Tyne at the invitation of Mr. Rutherford Morison. The patient was suffering from a septic pelvis with a temperature chart "like the peaks of the Himalayas," as Kelly described it. He cleared out the pelvis beautifully and it was altogether a most masterly performance, but I think, if anything, it was almost

surpassed by the exhibition of cystoscopy by his own method with which it was followed. He invited us to time him in passing the ureteric catheter, but before we could get out our watches the instrument was safely introduced up to the kidney pelvis. On the same occasion I cherish the recollection of quite a long visit which he paid to the pathological museum at the College of Medicine. I was assistant curator at the time, and the interest he took in the specimens that I was able to show him was a great encouragement. I never saw a larger audience of medical men in Newcastle than on the occasion when Kelly was billed to lecture under the title of "Lest we Forget." There was great speculation as to what he intended to talk about, and I somehow feel that the audience would not have been quite so large if it had been known that he was going to lecture on Walter Reed and his work in connexion with banishing yellow fever from the Panama Canal zone. From about the time of the last war Kelly's name rather seemed to disappear from professional activity, although it was often hinted that he was carrying on important work in the use of radium. His views on evangelical work, temperance, and social welfare often brought his name before the public, but the methods he employed in promulgating his views on these subjects at all times occasionally caused a little discomfort to his friends notwithstanding his obvious sincerity.

JOHN KEAY, C.B.E., M.D., F.R.C.P.ED.

Dr. John Keay, who died at his home in Beaminster, Dorsetshire, on Jan. 21, aged 83, was born in Co. Wicklow. He began his medical studies at Owen's College, Manchester, but soon afterwards transferred to Glasgow University, where he qualified M.B., C.M. in 1881. He was successively house-surgeon and house-physician at the Glasgow Royal Infirmary, and then took a course of postgraduate study in Vienna. Returning to Scotland he began his life's work in psychiatry by taking a junior assistantship in Crichton Royal, Dumfries, in the spring of 1883, subsequently holding senior appointments at Polton and Inverness. In 1904 he became medical superintendent of Bangour Institution, near Edinburgh, which post he held until he retired in 1931. He was also lecturer on mental diseases at the School of Medicine of the Royal Colleges. He thus rendered almost half a century of service in Scottish lunacy administration. In 1881 he proceeded M.D.Glasgow with a thesis on "Some Features of Modern Asylum Practice," and two years later was admitted a member of the Royal College of Physicians of Edinburgh, being elected to a Fellowship in 1892. As president of the Caledonian Medical Society in 1908 he gave an address on "Fifty Years of Scottish Lunacy Administration," summarizing the evolution of lunacy law and asylum practice from 1855 onwards. On the outbreak of war in 1914 Keay was made commandant of the Bangour War Hospital with the rank of lieutenant-colonel, and soon after the conclusion of hostilities in 1919 received the C.B.E. in recognition of his services. He contributed a number of papers to the literature of his specialty, and in 1918 achieved the highest honour in this field of medicine by being chosen president of the Royal Medico-Psychological Association. Keay was a rather shy man, but he was even-tempered and extraordinarily diplomatic and tactful in dealing with those with whom he was associated. He was fond of outdoor sports, was a fine companion, and notwithstanding his long residence in Scotland he never lost the Irish brogue in his speech. He is survived by his wife, who was a daughter of Dr. Rutherford of Crichton Royal, Dumfries.

A. M. WATTS, M.D., D.P.H.

We regret to announce the death at his home in Broadstairs on Jan. 23 of Dr. A. M. Watts. Born in 1871 and educated at the Royal Academy, Gosport, and University College, London, Alexander Minter Watts qualified M.R.C.S. and L.R.C.P. 1894. After a few years in general practice he studied at Newcastle-upon-Tyne, obtaining the M.B., B.S.Durham in 1901 and the M.D. of that University in 1903. He was early attracted to public health work, and while in general practice at Minster was a member of the Isle of Thanet Rural District Council and Board of Guardians. In 1912 he obtained the D.P.H. and took a whole-time appointment with the Kent County Council. After the last war, in which he served in the R.A.M.C., he was appointed medical officer of health of the East Kent (No. 1) United District, which post he held until last December, when he retired owing to failing health. Dr. Watts was well known not only to all his colleagues in the area but also over a large part of Kent. He was an active member of the B.M.A., serving on the Kent Branch Council and also as chairman of the Isle of Thanet, later the East Kent, Division from 1933 to 1936 and again in 1942. His nomination as president of the Kent Branch in 1935 was for him a just recognition of many years of good work for the medical profession in the county, and he greatly appreciated the honour. In 1938 he was elected member of Council of the B.M.A., representing Kent and Sussex. Among a number of other activities was his interest in the National Association of Local Government Officers, and he was president of the Thanet Branch for several years. Although in failing health Dr. Watts carried on for as long as possible owing to the shortage of doctors, and he will be greatly missed by all those who knew him as a friend or adviser. He is survived by his widow.

Dr. SELWYN HALE PUCKLE died at Church Stoke, Montgomeryshire, on Dec. 13, 1942, aged 83. Born at Hamilton, Victoria, Dr. Puckle was educated at Gelong Grammar School and came to this country in 1878. He took his B.A. at Trinity Hall, Cambridge, in 1881 and qualified M.B., C.M. at Edinburgh in 1885. The following three years were spent in house appointments and assistantships in Edinburgh, and then he settled in Bishop's Castle, Salop, where he stayed until he retired in 1919. He had the esteem and respect of the population of a very extensive district. In addition to his professional duties he found time for much public work. He was mayor of the borough in 1899 and from 1910 to 1914, and took a keen interest in the life of the district, even after he retired, until failing health cut him off from active work three years ago. He took part in all kinds of sport and enjoyed shooting up to a few years before his death. He was a member of the B.M.A. from 1888 to 1919 and was president of the Shropshire and Mid-Wales Branch in 1909-10. His wife, whom he married shortly after coming to Bishop's Castle, died in 1939, and his later years were saddened by the absence abroad of his three sons—two in India and one in Hong Kong who is now a prisoner in Japanese hands.

Dr. JOHN LEWIS JONES of Llansamlet, Swansea, died suddenly at his home on Dec. 14, 1942, at the age of 78. Dr. Jones was born at Llanon, Cardiganshire, and was educated at Christ College, Brecon, and Edinburgh University, qualifying M.B., C.M. in 1891. From the time he qualified until 1935 he practised in Llansamlet and district, where he was both physician and friend to large numbers of the inhabitants. He held all the local medical appointments, and was made J.P. for the Borough of Swansea in 1919. He was twice married, both wives predeceasing him; there were no children. Dr. Jones had been a member of the B.M.A. for 39 years.

We regret to announce the sudden death on Jan. 29 after a short illness of Dr. ALFRED ADAMS of Knutsford, Cheshire. Taking up medicine rather later than most, Alfred Adams qualified M.B., Ch.B. with honours at Liverpool University in 1910; two years later he took both his M.D. and the D.P.H. He held the Johnston Colonial Fellowship in Pathology and Bacteriology at Liverpool for a year before being appointed medical superintendent of the Liverpool Sanatorium, Delamere Forest, in 1912, a post from which he retired after twenty-six years' service on reaching the age limit in 1938. Dr. Adams was in many ways a pioneer in the early institutional treatment of pulmonary tuberculosis, and conducted the often difficult work of the sanatorium with ability and initiative. As far back as 1913 he was writing on induced pneumothorax in this disease. During the last war, in which he served with the rank of captain, he was in charge of No. 2 Mobile Bacteriological Laboratory in Salonika and served also in Gallipoli. He was a regular attender at medical meetings in the North-West, and for two years was president of the North-Western Tuberculosis Society. With the outbreak of the present war he came out of retirement and took up work as District Tuberculosis Officer under the Cheshire County Council.

Dr. CHARLES JOHN GIRLING, who has died at Stratford-on-Avon, was the son of a North Country clergyman and was educated at Guy's Hospital. After qualifying in 1889 he went to Leeds, where he was associated with the late Lord Moynihan as assistant to Mr. Jessop, the celebrated Yorkshire surgeon. Later he went into general practice at Batley, and early this

century he came south and worked for thirty years in a rural district in Dorset. He was a member of the B.M.A. for thirty years, and in 1930 was president of the Dorset and West Hants Branch. Essentially a quiet and unassuming man, Girling became the guide, philosopher, and friend of several generations of Dorset folk, and it was characteristic of him that when acknowledging some gifts from his friends on his retirement he used the phrase: "I've never been anything special." It will be a long time before this simple man with his simple pleasures and simple philosophy will be forgotten by his wide circle of friends.

We regret to announce the death at Bristol on Jan. 13 at the age of 74 of Dr. ISIDOR FISCHER, an eminent medical historian and gynaecologist, formerly a privat-dozent of Vienna. He was a prolific writer on the history of medicine, but his chief works were his *Lexicon of Eminent Doctors in the Last Fifty Years* (1932-3) and *Eponyms in the Terminology of Disease* (1932), two of the most useful books of reference that a medical library can possess. He contributed two valuable articles to Halban and Seitz's *Biology and Pathology of Women*—namely, "The History of Gynaecology" (1924) and "A Retrospect of the Progress of Obstetrics and Gynaecology in the Nineteenth Century" (1929). He was also the author of the *History of Obstetrics in Vienna* (1909), *Medical Deontology* (1912), and the *History of the Medical Society of Vienna, 1837-1937* (1938). He settled in this country in 1938, where he continued his studies in a more sympathetic atmosphere than in Vienna, and the following year was elected an honorary member of the Section of the History of Medicine of the Royal Society of Medicine.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Feb. 6 the following medical degrees were conferred:

M.B., B.CHIR.—D. J. Bauer, D. M. Jeffreys, S. J. R. Macoun, Yok Hing Ng, P. H. Sanderson, I. MacN. Smith, P. H. S. Hooper, J. N. Agate, G. G. B. Blackman, P. D. Eeman, D. I. Lishman, E. J. T. Prettejohn, F. K. Lau, *T. S. Hindle, *L. A. S. White.

*In person.

In the schedule to Regulation 26 for Degrees in Medicine and Surgery relating to exemptions from the First M.B. Examination, the Faculty Board of Medicine has substituted "The Intermediate Examination in Science of any University in Great Britain or Northern Ireland" for "The Intermediate Examination in Science in the University of London or Wales."

UNIVERSITY OF BIRMINGHAM

The Council of the University has recently converted the Readership in Pharmacology into a Chair of Pharmacology and has promoted Dr. Alastair C. Frazer to the professorship. Dr. Frazer has held the readership for rather more than 12 months.

UNIVERSITY OF SHEFFIELD

Dr. Helen P. Uprichard has been appointed an assistant tutor in medicine.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A Comitia of the College was held on Jan. 28, when, the President, Sir Charles Wilson, being abroad, the Senior Censor, Sir Henry Tidy, was in the chair. The following Fellows were appointed representatives of the College: Sir Robert Hutchison on the Aliens Committee; Prof. F. R. Fraser on the Poisons Board; and Sir Arthur MacNalty and Prof. J. W. McNee on the Imperial Cancer Research Fund. The chairman reported that a message of greeting had been sent to the National University of Chile, which celebrated its centenary by holding a First National Congress of Medicine.

Prof. M. Greenwood will deliver the FitzPatrick Lectures on "Medical Statisticians from Petty to Farr" on Feb. 9 and 11; Dr. S. A. Henry the Milroy Lectures on "The Health of the Factory Worker in Wartime" on Feb. 23 and 25; Prof. R. V. Christie the Goulstonian Lectures on "Emphysema" on March 4, 9, and 11; Dr. Geoffrey Evans the Lumleian Lectures on "Arteriosclerotic Disease" on March 16 and 18; Prof. G. W. Pickering the Oliver-Sharpey Lectures on "The Circulation in Arterial Hypertension" on March 23 and 25; and Air Commodore Symonds the Croonian Lectures on "Flying Stress" on May 25 and 27.

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

D. S. Cadman, M.B.Camb., D. R. Cameron, M.D.St. Andrews, E. D. H. Cowen, M.B.Camb., F. C. Deller, M.D.Liverp., W. Fine, M.B.Lond., Frances V. Gardner, M.B.Lond., W. P. U. Jackson, M.B.Camb., D. S. Lewes, B.M.Oxon, D. de la C. MacCarthy, M.D.Lond., Surg. Lieut. R.N.V.R., M. E. MacGregor, M.B.Lond., Surg. Lieut., R.N., E. A. Spriggs, B.M.Oxon, Lieut., R.A.M.C., T. C. Studdert, M.B.Durh.

Licences to practise were granted to the following 221 candidates (including 24 women) who had passed the Final Examinations in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

J. D. Abbott, J. M. Allcock, P. S. Allenby, D. Annis, N. Arenstein, J. K. Arkle, F. R. St. C. Assinder, E. H. Back, Muriel I. I. Baird, T. E. Bairstow, J. F. Baker, T. M. Ball, D. R. Barnes, Joan E. Barter, N. I. Bartholomew, H. C. Bergmann, Margaret E. Berry, Isobel P. Beswick, J. W. Betts, Rosemary P. Biggs, P. R. Birks, P. Ll. Blaxter, D. H. Bodger, C. Boroda, J. P. Bound, R. E. Bowers, J. R. Briggs, F. S. W. Brimblecombe, F. B. Bromfield, F. H. Budden, J. D. Buxton, C. Campion, S. L. Carey, C. B. Cartledge, W. F. Cavenagh, A. H. Cheshire, J. M. Childs, S. M. Chris, G. H. V. Clarke, R. B. Coles, M. C. Connell, W. D. D. Cooke, T. A. Copp, A. K. Cumming, F. A. L. Da Cunha, Elisabeth Dalley, K. H. Dalrymple, I. E. Davidson, D. I. Davies (died Jan. 3), R. G. Davies, Jesser S. Davis, J. T. Dawson, L. F. Demetrius, P. F. G. Denton, J. Douglas, W. K. Douglas, A. H. Drewitt, J. A. Easom, C. D. Edwards, A. J. Eley, T. H. Elias, F. R. Ellis, I. C. W. English, G. L. Evans, G. M. Evans, T. G. Evans, Alianore M. C. Fairfax-Lucy, H. C. Faulkner, J. F. A. Fenton, P. F. G. Finch, R. A. Fisher, H. T. Foot, Kate Forrest, T. C. Fort, A. R. Fox, H. G. Frampton, Catherine J. S. Gauvain, T. A. L. Gethin-Jones, D. S. Gibbs, R. A. de K. Glover, F. J. Goddard, S. Goldman, H. Goldstein, Eva M. Graves, F. T. Graves, A. J. Gray, F. W. M. Greaves, R. F. Griffith-Evans, F. D. Griffiths, R. W. Griffiths, S. D. Gun-Munro, M. J. L. Hassall, P. E. Helme, A. G. Hesling, G. C. Hickie, A. R. H. Hicks, Hazel B. Hill, J. L. Honig, G. A. N. Horton, J. G. Howells, A. J. R. Hudson, F. P. Hulke, W. H. Humphreys, R. J. Jameson, E. S. Jardine, Margaret M. G. Joad, E. L. John, Kathleen E. J. Jones, P. G. Keates, Margaret Kemsley, H. W. H. Kennard, R. A. H. Kinch, E. J. King, H. E. Knowles, S. Kramer, R. Lake, C. L. S. Lambert, Kathleen M. Lane, P. L. Langton-Lockton, H. J. C. J. L'Etang, W. J. Lewis, M. Lindner, J. Littler, R. E. Loder, T. G. E. Loosemore, A. MacL. Macarthur, R. I. McCallum, K. McGlashan, I. S. MacLeod, I. P. Madhok, H. J. Markham, B. P. Marmion, A. S. Mason, C. J. Mathes, R. H. Maudsley, D. G. Maurice, S. R. Mawson, F. S. Mellows, Jessica Mestel, J. R. Moffat, P. A. G. Monro, R. J. Moolan-Feroze, H. C. Moore, R. Morris, K. E. Mortimer, M. F. Morton, J. R. Napier, G. D. K. Needham, C. T. Newnham, R. D. Nicholson, N. Noble, Rhona M. Oliver, H. B. F. Ordish, L. R. B. Parker, R. T. Parkin, P. R. P. Pearsall, J. G. Pegg, E. J. Perks, D. J. Petit, L. Posner, R. B. Raffle, A. J. H. Rains, G. S. Ramsay, C. R. McD. Redwood, W. T. Rees-Jones, C. A. I. Reis, S. M. A. Rizvi, J. A. Robertson, H. M. Robinson, Edith M. Robson, E. Roebuck, J. Ronchetti, J. P. I. Rose, A. J. E. Rowe, P. Rowntree, I. A. Roxburgh, T. J. Ryan, A. P. S. Sanders, H. T. N. Sears, J. Sebel, F. O. J. Shaw, G. N. Shone, M. Singh, E. G. Sita, B. F. Smallhorn, E. S. O. Smith, F. M. Smith, T. P. Smith, V. O. G. Smyth, P. Solnik, E. M. Southern, G. Steiner, D. G. H. Stone, B. Sullivan, F. R. Sutton, N. W. Tattersall, G. W. Taylor, L. B. Thomas, M. V. P. Thomas, J. D. Thompson, W. B. Thompson, Dorothy H. Thorne, B. E. Tomlinson, Edith M. M. Toye, Joan D. Trethowan, W. H. Trethowan, G. C. Turner, Ll. R. Twentyman, Elizabeth Tylden, F. L. A. Vernon, J. A. Vyse, E. Waddington, I. R. Waters, G. Watkinson, H. Weinreb, J. A. T. West, A. N. Whiteside, D. H. J. Williams, H. O. Williams, H. A. G. Winter, Celestina M. Xavier.

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons of England, to the following successful candidates:

M. R. Blair, S. D. Elek, Ll. M. Franklin, A. Jephcott, N. J. S. Nathan, B. F. O'Flynn, T. G. Osler, B. F. Russell, A. E. Tinkler.

Diplomas in (*a*) Anaesthetics (27), (*b*) Psychological Medicine (10), and (*c*) Laryngology and Otology (7) were granted to the successful candidates whose names were printed in the reports of the meetings of the Royal College of Surgeons of England in the *Journals* of Dec. 26 (p. 770), Jan. 30 (p. 147), and Jan. 30 (p. 147) respectively.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the College was held on Feb. 2, with the President, Dr. Charles McNeil, in the chair. Dr. John George Sclater (Edinburgh), Dr. Adam Patrick (Dundee), and Dr. John William McNee (Glasgow) were introduced and took their seats as Fellows of the College. Dr. John Alexander Mortimer (Hamilton), Dr. George Alexander Grant Peterkin (Edinburgh), Dr. James Ronald (Stirling), and Dr. Thomas Alfred MacGibbon (Norfolk) were elected Fellows of the College.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Dr. George Graham will deliver the Finlayson Memorial Lecture on "Various Hypotheses on the Causes of Diabetes Mellitus" in the hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, Feb. 24, at 4 p.m.

The Services

Air Vice-Marshal A. GRANT, C.B.E., R.A.F., has been appointed Honorary Surgeon to the King in succession to Air Vice-Marshal W. Tyrrell, C.B.E., D.S.O., M.C., R.A.F. (ret.).

Prob. Temp. Surg. Lieut. A. E. DE LA T. MALLETT, R.N.V.R., has been awarded the D.S.C. for bravery and enterprise when a west-bound enemy convoy was intercepted off Dieppe by our light naval forces and one supply ship and one escorting ship were sunk and others damaged.

The M.C. has been awarded to Capt. W. H. Campbell, A.A.M.C., and to Capt. M. H. K. Haggie and Lieut. C. G. Rob, R.A.M.C.

Flying Officer A. J. F. Eberle, R.A.F.V.R., has been appointed M.B.E. The official citation in the *London Gazette* of Jan. 26 reads as follows:

"One day in Nov., 1942, when two aircraft were taking off in formation, the one leading struck another which was standing on the side of the runway, causing it to be thrown into the path of the second aircraft which was taking off. The three aircraft caught fire and the pilot of the second aircraft in the formation was stunned and trapped in his cockpit by the hood, which had become locked. Fire engines which came to the scene immediately were unable to subdue the flames. At this stage F/O Eberle and an Army officer leapt on to the wing but, despite frantic attempts to open the cockpit hood, they were unable to do so before being forced to retire owing to the flames. Seizing an axe, these officers returned to the aircraft, which was burning furiously with ammunition exploding in both wings, and succeeded in smashing a panel. An airman then leapt on to the wings and with great presence of mind pulled the hood release, enabling the two officers to extricate the pilot from the blazing aircraft. F/O Eberle and his Army companion displayed outstanding courage and complete disregard of their safety in saving the pilot from certain death."

CASUALTIES IN THE MEDICAL SERVICES

The name of Temp. Surg. Lieut. J. E. POWELL, R.C.N.V.R., is included in an Admiralty Casualty List, published on Jan. 29, among the officers of H.M. Aircraft Carrier *Avenger* who are reported "missing, believed killed."

Prob. Temp Surg. Lieut. ROBERT ROSIE LATTO, R.N.V.R., is included as "missing, presumed killed" in an Admiralty Casualty List published on Feb. 5. He was born on March 17, 1918, and was educated at Cardiff, qualifying M.R.C.S., L.R.C.P. in 1941 and taking the degrees of M.B., B.S. of the University of London in the same year. Before entering the R.N.V.R. he held a post at the Prince of Wales Orthopaedic Hospital, Cardiff.

Capt. FREDERICK HUNTER, I.M.S., who died in India on Jan. 22 as the result of an accident, was educated at the University of Aberdeen, where he graduated M.B., Ch.B. in 1926, proceeding M.D. (with commendation) in 1934. Before entering the I.M.S. as Temp. Lieut. in Feb., 1942 (with seniority Aug., 1935), he held house posts at Perth and Rochdale Infirmaries and from 1929 to 1936 was in practice at Turriff, Aberdeenshire. In 1936 he moved to Worthing, where he was in partnership with Dr. John Ferries. He had been a member of the B.M.A. since 1928.

Prisoners of War.—Lieut.-Col. J. Bennet, R.A.M.C., Surg. Cmdr. H. L. Cleave, R.N., Capt. E. K. Cruickshank, R.A.M.C., Major J. W. D. Goodall, I.M.S., Capt. F. J. W. Hooper, R.A.M.C., Capt. J. G. Jesson, R.A.M.C., Col. V. H. Wardle, M.C., T.D., Capt. A. J. N. Warrack, R.A.M.C., Capt. R. B. C. Welsh, R.A.M.C.

Wounded.—Capt. J. C. Bishop, R.A.M.C., Capt. M. S. Chayen, R.A.M.C., Capt. E. P. Johnson, R.A.M.C., War Subs. Capt. J. S. Martin, R.A.M.C., Capt. B. E. Miles, R.A.M.C., War Subs. Capt. G. R. Wightman, R.A.M.C.

Missing.—Lieut.-Col. (Acting Col.) K. P. MacKenzie, R.A.M.C., Capt. E. J. A. Needham, R.A.M.C., Surg Lieut. N. J. W. Smith, R.N.

DEATHS IN THE SERVICES

Col. JAMES HENRY ROBINSON BOND, C.B.E., D.S.O., late R.A.M.C., died at Cheltenham on Jan. 14, aged 71. He was born on July 21, 1871, qualified M.R.C.S., L.R.C.P., in 1898, and entered the R.A.M.C. in the following year. He served in the South African War of 1899–1902, receiving the Queen's Medal with six clasps and the King's Medal with two clasps. During the war of 1914-18 he served in Mesopotamia from 1915 to 1918, was mentioned in dispatches, and was awarded the D.S.O. in 1917 and the C.B.E. in 1919. He retired in 1924, and latterly had been a confirmed invalid.

Lieut.-Col. JOHN LAWRENCE WOOD, O.B.E., R.A.M.C. (ret.), died at Rosslyn Castle, Midlothian, on Jan. 4, aged 60. He was born at Darlington and was educated at the University of Cambridge and at St. Bartholomew's Hospital, taking the B.A. in 1902 and the M.R.C.S., L.R.C.P. in 1906. He entered the R.A.M.C. and served in India and, during the war of 1914-18, in France, and was awarded the O.B.E. for his services. He retired in 1927 but was re-employed on the outbreak of the present war in Sept., 1939, in the Scottish Command, reverting to retired pay in July, 1940. He is survived by two sons, the elder of whom is serving in the R.A.M.C.

Lieut.-Col. WILFRID WYNNE JEUDWINE, C.M.G., I.M.S. (ret.), who died at Eastcote, Middlesex, on Jan. 22, was born on May 19, 1877, and was educated at the University of Cambridge and at St. Bartholomew's Hospital. He graduated B.A. in 1898, and qualified M.B., B.Chir., and M.R.C.S., L.R.C.P. in 1902, proceeding M.D. in 1912 and taking the F.R.C.S.Ed. in 1933. He entered the I.M.S. in 1902 and had a distinguished career in both the military and civil branches of the Service. In 1908 he served with an expedition on the North-West Frontier of India, receiving the medal with a clasp. In the war of 1914-18 he served in France and Belgium, was mentioned in dispatches, and was awarded the C.M.G. in 1916. He held the important civil posts of professor of ophthalmic surgery at King Edward's Medical College, Lahore, in 1920-1, of civil surgeon at Jullunder in 1922, chief medical officer in the Delhi Province in 1922-3, and civil surgeon at Simla West from 1923 to 1925. He was promoted lieut.-col. in 1922 and retired in 1928. He was author of the *Handbook for Compounders in Civil Hospitals and Sub-assistant Surgeons in Outlying Districts.* After his retirement he was for a time school medical officer at Newport, Isle of Wight, and more recently was in practice at Eastcote. He had been a member of the B.M.A. for 27 years.

Medical Notes in Parliament

Treatment of Venereal Diseases in the Army

Replying to Dr. Morgan on Jan. 28, Sir JAMES GRIGG said sulphapyridine and sulphathiazole were recommended by the War Office for the treatment of gonorrhoea; neo-arsphenamine, bismuth, and in some cases mapharside for the treatment of syphilis. Specific and general instructions on treatment had been issued to all medical officers, and comprehensive notes on these diseases had also been issued for their guidance. The drug treatment was in general the same in the American and Canadian armies, but differed in some details. A good supply of all these drugs was available. Answering Mr. Groves on the same date, Sir JAMES GRIGG said King's Regulations laid down that commanding officers should ensure that all men were medically inspected not later than the morning after rejoining their units from furlough. He was satisfied this was in general carried out. Officers returning from leave did not automatically undergo a medical inspection.

British Hospital in North Russia

Mr. NOEL BAKER, replying to Commander Bower, said that late last summer the British Government arranged for the establishment of a British hospital unit in North Russia. This unit, which was staffed by British Naval officers and ratings, now dealt with all sick and wounded British merchant seamen at Murmansk. The Soviet Government had agreed in principle to the establishment of a second British hospital unit at another port in Northern Russia.

Skin Diseases among Troops

On Feb. 2 Sir JAMES GRIGG, replying to Captain C. S. Taylor, said that 23 officers and 198 other ranks were returned from the Middle East in 1942 with skin diseases. It was not known how many of these contracted the diseases before they left this country, but the number was likely to be very small. He was satisfied that a very complete system of medical inspection of troops going over-seas was in operation, and that no one suffering from a serious skin disease was sent abroad.

Plan of Medical Officers of Health

During the debate on economic policy after the war, in the House of Commons on Feb. 2, Mr. PETHICK-LAWRENCE expressed his pleasure on seeing in the Press that day a report issued by the Society of Medical Officers of Health, which stated: "A national medical and health service should be established on a whole-time salaried basis with the complete facilities outlined in this report. Private enterprise cannot provide and maintain complete hospital, medical, and allied services." He had, he added, seen other statements by eminent doctors and, he thought, by bodies representing the doctors, bearing that out.

Medical Services for Ethiopia

Mr. EDEN announced on Feb. 3 that at the request of the Emperor of Ethiopia a senior member of the Colonial Medical Service was seconded on Feb. 1, 1942, for service under the Emperor, who appointed him Director-General of the Ethiopian Medical Services. At the request of the Ethiopian Government the names of four senior non-British doctors had been proposed to them for medical appointments. Every effort had been made and would be made, within the limits imposed by the manpower situation in this country, to meet the Ethiopian Government's further requirements. In addition the British Red Cross maintained a hospital in Addis Ababa. The Friends Ambulance

Unit had recently dispatched an important unit of doctors and medical assistants to undertake medical work in the capital and in the provinces. They had also supplied considerable quantities of urgently needed drugs.

Maternity Beds

Mr. ERNEST BROWN told Dr. Summerskill on Feb. 4 that during 1942 the maternity beds in the L.C.C. hospitals were increased by approximately 220, bringing the total number to approximately 627. During the same period the maternity beds in the voluntary hospitals in the county of London were increased by 165, bringing the total number to approximately 515. These were in addition to the 2,700 beds in emergency maternity homes in reception areas and the houses in the country to which many London homes had been removed. Both the L.C.C. and the voluntary hospitals hoped to provide more maternity beds in the near future if staff could be found.

No Special Diagnostic Service for Wales

Sir HENRY MORRIS-JONES asked on Feb. 4 whether the Minister of Health would make arrangements for the provision of free diagnostic assistance for young insured persons between the ages of 15 and 25 in Wales who were referred to the Regional Medical Service by their panel doctor, and, where necessary, hospital and convalescent home treatment in a State-aided hospital on the lines of similar provision by the Scottish Department in the Clyde Valley. Mr. BROWN replied that the staff of the Department's Regional Medical Service was engaged on war duties, and consequently the procedure to which Sir Henry referred was not practicable in England and Wales. Diagnostic and other facilities of hospitals in England and Wales had been augmented in a number of ways under the Emergency Hospital Scheme. He had no reason to suppose that they were not available to patients referred by their doctors.

Cost and Staffing of Medical Boards

Mr. BEVIN stated that between July, 1940, and Dec. 31, 1942, the average number of medical practitioners serving on medical boards was 3,418, the largest number at one date being 3,781, and the smallest 3,014. Between the outbreak of hostilities and Dec. 31, 1942, approximately £2,770,000 was paid in fees and travelling expenses to chairmen and members of civilian medical boards and to consultant examiners. These payments related to examination of persons called up under the National Service Acts for service in the Forces or in Civil Defence and of those volunteering for service in the Forces.

Cottages for Farm Workers

On Feb. 4 Mr. BROWN announced that the Government had authorized preliminary arrangements for the building by local authorities of a limited number of cottages for farm workers. Increased food production had aggravated the existing shortage and the cottages would be built where the need was most acute. Preliminary preparations were being made on the basis of 3,000 cottages.

Vaccinia and Small-pox Deaths.—On Jan. 19 Mr. ERNEST BROWN told Mr. ALFRED EDWARDS that 6 deaths were registered in England and Wales during 1941 of which the causes were certified as vaccination, vaccinia, or other sequelae of vaccination. The sexes and ages of the deceased were 3 males aged 5 months, 19 years, and 30 years, and 3 females aged 9 weeks, 5 months, and 2 years. In addition, inquiries resulted in one other death certified as due to meningo-encephalitis being classed to vaccinia. The deceased was a male aged 29 years. Mr. BROWN also informed Mr. Edwards that no death from small-pox was registered in England and Wales during 1941.

Maintenance of Cancer Patients.—Mr. HARVEY inquired on Jan. 21 whether, in view of the fact that free maintenance in hospital had been extended to tuberculous patients and of the importance of encouraging sufferers from cancer to seek early treatment, a similar provision could be made in their case. Mr. BROWN replied that the distinction in payment for hospital treatment between infectious diseases (of which tuberculosis was one) and non-infectious diseases (of which cancer was one) was a matter of statutory requirement. In deciding whether any charge should be made in an individual case of the latter type local authorities were authorized to have regard to the financial circumstances of the individual. He had no reason to suppose that individuals were deterred from undertaking treatment by any difficulties on this account.

Medical Staffing of Appeal Tribunals.—Sir WALTER WOMERSLEY estimates that to staff the suggested pensions appeal tribunals, including the additional appointments which would have to be made to his own staff, between 35 and 55 whole-time doctors would be required. He added that the British Medical Association was last consulted on this matter on Nov. 27 last.

Medical Referees for War Workers.—In reply on Jan. 21 to Miss Ward, Mr. ERNEST BEVIN announced that after consultation with the British Medical Association and Local Medical War Committees, he had appointed medical referees who, among other things, examined workers who sought permission on medical grounds to leave employment which was scheduled under an Essential Work Order but could not produce satisfactory medical evidence. He was also arranging for these medical referees to examine workers in certain circumstances where the employers wished to discharge them on medical grounds.

Mines Medical Service.—On Feb. 2 Major LLOYD GEORGE told Mr. Lipson that 207 applications were received from doctors for posts under the Ministry of Fuel and Power for the Mines Department. Offers of appointment had been made to six of the applicants, and the selection of candidates for the remaining three posts would be made in the near future.

Parliamentary Medical Committee.—The Parliamentary Medical Committee met on Feb. 2, Sir Francis Fremantle in the chair, and discussed the shortage of medical men for public services and in particular for the Indian Medical Service.

Notes in Brief

It has been decided to bring into operation, as soon as the necessary arrangements can be made, the Child Adoption (1939) Act.

It is estimated that over 90% of the milk sold in London for domestic consumption is pasteurized. Mr. Mabane denied on Feb. 3 that a decision had been taken to make compulsory the pasteurization of raw milk.

Introduction of oatmeal into the national loaf is in progress.

Medical News

The spring programme of Chadwick Public Lectures, arranged by the Chadwick Trust (204, Abbey House, Westminster, S.W.1), is as follows: Feb. 23, 2.30 p.m., at London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., Prof. M. Greenwood, F.R.S., "Social and Industrial Environment and Disease"; March 16, 2.30 p.m., at Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., Dr. R. Cruickshank, "Some Post-war Problems in the Control of Infectious Diseases"; April 6, 2.30 p.m., at Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., Mr. T. Sharp, "Town Planning and Public Health"; May 11, 2.30 p.m., at Royal Society of Tropical Medicine and Hygiene, Dr. C. F. White, "Health Problems in Rebuilt London"; June 17, 4 p.m., at Chelsea Physic Garden, Swan Walk, S.W., Mr. F. J. Chittenden, "Plants causing Irritation." Admission to the lectures is free and further particulars may be had from the secretary of the Trust.

The President and Council of the Geological Society of London, Burlington House, London, W.1, extend a cordial invitation to any members of the Association who would care to attend their next ordinary general meeting, to be held on Wednesday, Feb. 24, at 3 p.m. There will be a discussion on some medico-geological problems, and the following communications will be read: "Human Fluorosis," by Drs. D. C. Wilson and M. M. Murray; "The Radiology of Human Fluorosis," by Dr. F. H. Kemp; "Molybdenum as the Cause of Teart Disease," by Dr. A. H. Lewis; and "The Geological Aspects of Fluorosis and Molybdenosis, and Other Problems," by Mr. C. E. N. Bromehead, F.G.S.

The second meeting of the Pan-American Congress of Ophthalmology will be held in Montevideo from Nov. 4 to 7, 1943. One full day each will be devoted to social ophthalmology (including prevention of blindness and trachoma), papers on research work, clinical ophthalmology, and surgical ophthalmology. Manuscripts should reach the executive secretaries, Dr. Conrad Berens, 477, First Avenue, New York, U.S.A., or Dr. Moacyr E. Alvaro, Conselaçao 1151, Sao Paulo, Brazil, before June, 1943.

Twenty-six grants were made by the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation during 1942, two of them to workers in this country: Dr. V. Korenchevsky of Oxford and Dr. Hermann Lehmann of the Sir William Dunn Institute, Cambridge. The nineteenth annual report of the Foundation states that during the present great need for funds grants will be given in the sciences closely related to medicine without reference to special fields; the maximum amount will usually be less than $500. Applications for the year 1943–4 should be sent to Dr. Joseph Aub, Massachusetts General Hospital, Boston, Mass., before April next.

The Wellcome Foundation has presented medical supplies to the value of £2,500 to Mrs. Churchill's Aid to Russia Fund and a similar amount to Lady Cripps's United Aid to China Fund. Arrangements have been made for these medical supplies to be dispatched to Russia and to China at an early date.

A new hospital, costing nearly £250,000, has been opened at Bulawayo, where the European population has increased in the last ten years from 51,000 to close on 70,000. Treatment facilities for natives are also being extended; in 1932 there was 1 native clinic and in 1941 the number was 53, and 10 have been built since; in-patients in 1941 numbered 45,948, as against 757 in 1932.

A meeting of the Fever Hospital Medical Service Group will be held in the Lecture Theatre at the London School of Hygiene, Keppel Street, Gower Street, London, W.C.1, at 3 p.m. on Friday, Feb. 26. Prof. S. P. Bedson will open a discussion on "Practical Applications of Recent Virus Research in Infectious Diseases."

The Association of Austrian Doctors in Great Britain (affiliated to the Free Austrian Movement) have arranged for a lecture to be given by Dr. Francis Bach on Sunday, Feb. 28, at 11.30 a.m., at 69, Eton Avenue, London, N.W.3 (near Swiss Cottage station)—the subject being "Rheumatic Diseases: Their Recognition and Treatment."

Speaking in Edinburgh last week, Dr. Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, made a plea for the fuller use by mothers of the orange juice and cod-liver oil provided under the Ministry of Food's scheme. Last month apparently only 21.6% and 16.8% respectively of those entitled to these important vitamin vehicles took advantage of the scheme.

Medical officers of health are now asked to notify the Ministry of Health of any women in their areas born in 1923 who have a history of tuberculosis. Form T.147 (W) should be used as before.

East Anglia and Bucks-Berks-Oxfordshire are the two latest areas in which hospital surveys are being undertaken by the Ministry of Health and the Nuffield Trust. This brings the number of surveys to date to six.

A sentence of nine months' imprisonment was passed at the Central Criminal Court on Jan. 13 on Dr. William St. John Sutton of Stepney for issuing false certificates to members of the Forces. He was also ordered to pay a sum not exceeding £50 towards the costs of the prosecution.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the notifications of infectious diseases went up with the exception of diphtheria and whooping-cough, with a fall of 189 and 51 cases respectively.

The rise in the notifications of paratyphoid fever, 32 cases, was due to an outbreak in Sussex, Hastings C.B., involving 27 persons—the largest outbreak for over twelve months.

There was a fall of 189 in the notifications of diphtheria, but the decline was not general, being contributed mainly by Yorks West Riding, Wales, Lancashire, and London with 71, 44, 37, and 26 fewer cases respectively.

The 51 fewer notifications of whooping-cough followed a continuous rise in incidence during the past month. The returns for Yorks West Riding fell by 52, and for Wales by 38, while those for Lancashire rose by 52.

The incidence of measles, after a reduction during the previous three weeks, has risen by 774 cases. In Yorks West Riding, however, the cases fell by 337. The largest of the increases were those of Yorks North Riding 218, Durham 155, and Gloucestershire 136. In the first county the rise was due solely to the experience of Middlesbrough C.B.

Dysentery notifications went up by 65 cases—almost 60%. New outbreaks occurred in Durham, Sedgefield R.D. 10, and Derbyshire, Derby C.B. 10. In Lancashire notifications mounted from 31 to 60, involving four county boroughs and four rural districts, the largest centres of infection being Manchester C.B. 18, Liverpool C.B. 7, Salford C.B. 8, Preston R.D. 15. Other important areas of infection were London 16, Surrey 17 (Epsom and Ewell M.B. 11), and Kent 17 (Maidstone M.B. 16).

In *Scotland* there was a rise of 47 cases in the incidence of acute primary pneumonia. During the past month the cases have been doubled, and in the week reviewed notifications in Glasgow went up from 139 to 186 and accounted for half the total cases in the country.

The recent outbreak of gastro-enteritis in St. Andrews, in which 110 persons were known to be affected, with 2 deaths, had its origin in sausage meat which had been heavily contaminated with an irritant poison.

In *Eire* only 4 cases of poliomyelitis were notified, the smallest number of cases for six months. During the height of the outbreak over 20 cases were reported each week.

Returns for the Week Ending February 6

The number of notifications of infectious diseases during the week in England and Wales included: scarlet fever 2,119, whooping-cough 1,695, diphtheria 897, measles 15,363, acute pneumonia 1,530, cerebrospinal fever 110, dysentery 89, paratyphoid 8, typhoid 9. In the great towns 109 deaths were recorded from influenza.

No. 4

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	113	12	28	4	3	156	6	42	4	7
Deaths		1	2				1	3		
Diphtheria	809	32	227	95	35	892	31	228	31	28
Deaths	24	1	6	5	—	33	4	7	1	1
Dysentery	178	16	24	—	—	125	29	32	—	—
Deaths		—	—	—	—			—	—	—
Encephalitis lethargica, acute	4	—	1		—	6	—	—		—
Deaths		1	—				—	—		
Erysipelas		—	58	14	3		—	53	11	5
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				22						
Deaths	33	3	8	7	3	48	9	4	7	2
Measles	12,601	821	392	39	41	1,235	107	77	77	1
Deaths	17	3	2	—	—	2	—	1	—	—
Ophthalmia neonatorum	104	5	20	—	1	69	2	23	—	—
Deaths										
Paratyphoid fever	33	—	1	—	—	14	1	1	—	—
Deaths		—	—	—	—		—		—	—
Pneumonia, influenzal*	1,528	89	27	3	4	1,304	83	29	—	21
Deaths (from influenza)	125	18	7	—	—	90	15	4	1	2
Pneumonia, primary			363	20				419	18	
Deaths		—		17	14		95		10	10
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					1			
Poliomyelitis, acute	10	—	2	4	—	5	—	1	1	—
Deaths		—	—				—	—		
Puerperal fever	—	1	17	2	—	—	—	16	3	—
Deaths		—					—			
Puerperal pyrexia	162	5	16		1	167	9	22		3
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,272	153	357	36	50	1,076	24	192	33	27
Deaths	5		2	—		3	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	6	—	4	7	—	10	1	—	5	2
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,790	104	119	55	3	1,439	24	38	29	—
Deaths	12	2	2	3	1	3	—	2	—	—
Deaths (0–1 year)	416	49	77	43	26	509	58	75	19	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,449	823	717	232	148	6,464	1,059	816	204	164
Annual death rate (per 1,000 persons living)			16·2	15·3	‡			18·4	13·6	‡
Live births	6,232	728	908	401	265	5,755	550	897	337	204
Annual rate per 1,000 persons living			18·5	26·4	‡			18·5	22·5	‡
Stillbirths	242	22	41			230	20	44		
Rate per 1,000 total births (including stillborn)			43					47		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death ra es for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Iron for Anaemia

Q.—*Anaemia of a mild type is common at present. Which is the best of the iron preparations and in what form is it most effective? Is there any need to add copper or manganese to the ingredients of the prescription?*

A.—Ferrous sulphate is the best preparation of iron for use at present. It is most effective when given alone—tab. ferr. sulph. (*N.W.F.*) 3 gr. t.d.s., p.c.—but may be better tolerated in the form of Blaud's pill (pil. ferr. carb. 10 gr. t.d.s., p.c.). There is no need to add copper or manganese.

Prophylaxis for Hay-fever

Q.—*How early in the year should prophylactic treatment of hay-fever patients be begun? Is there any advantage in having a vaccine made from local pollen?*

A.—Inoculations with pollen extract for the prevention of hay-fever should begin in the last week of February. They should be given every five days with increasing dosage until the limit of tolerance is reached. As a precaution against reaction three minims of adrenaline chloride (1 in 1,000) should be injected with the extract. Extracts made from local pollens have no advantage over stock preparations. Thus Timothy pollen extract desensitizes to such different species as maize and bamboo pollen (Freeman).

Disposal of Person Dead from Notifiable Infection

Q.—*I had a patient aged five years who showed symptoms of cerebrospinal fever and died after an illness of two days. Of course I notified it to the M.O.H. Instructions were given to the undertaker that the corpse must not be taken into the church before interment. Is this precaution in the interest of public health necessary and usual? The sanitary authority states that after referring the matter to their M.O.H. they are satisfied the precaution was necessary and usual. I have been M.O.H. to an urban district for over thirty years and have never taken these precautions and never heard of it being done before.*

A.—The general duty of preventing persons from coming into contact with, or proximity to, the body of any person who has died of a notifiable disease is imposed by section 164 of the Public Health Act, 1936, upon the person in charge of the premises where the body is lying. Such prevention might be taken to include removal to any other place except for purposes of burial or cremation, unless special precautions were taken. The more specific duty in relation to such bodies arises when the death from a notifiable disease occurs *in hospital* and the M.O.H. or other registered medical practitioner certifies that it is desirable that the body should not be removed except to a mortuary or place of burial or cremation. In such circumstances Section 163 of the Act prohibits, by inference, the body being taken to church. It has been quite usual for certificates of this kind to be issued by medical officers of health, or for the relatives or the undertakers to be advised that action on these lines will be taken if they persist in a proposal to hold a ceremony in church in the presence of the body. It may be noted that cerebro-spinal fever is not a notifiable disease in the sense of the Act, but the Regulations (S.R. & O., 1912, No. 1226) relating to this disease extend all the relevant powers and duties contained in the Public Health Acts to it and poliomyelitis. It is a matter for the judgment of the M.O.H. whether he will exercise his certifying powers for all the diseases to which they extend, or take into consideration modern knowledge as to the transmission of the particular disease which has caused the death.

Healed Sacro-iliac Tuberculosis and Child-bearing

Q.—*Miss X is about to marry. She suffered from tuberculosis of the left sacro-iliac joint six years ago, but x-ray examination four years ago showed that complete recovery had occurred. In view of her history she sought my advice concerning pregnancy and possible complications. The questions are: (1) What, if any, is the risk of maternal trauma, or flare-up of tuberculosis in the healed joint? (2) What is the likelihood of birth trauma on account of contracted or unyielding pelvic ligaments—should labour be induced early? (3) What is the risk of tuberculosis in the offspring?*

A.—If there has been no clinical or radiological evidence of active tuberculous bone disease for more than five years, the likelihood of reactivation by pregnancy is slight. Patients suffering from ankylosis of the hip caused by tuberculous disease in childhood are commonly sent to maternity hospitals because of fear of difficulty in confinement, but I have never seen or heard of a case in which the disease has been reactivated. In the case of the sacro-iliac joint matters are somewhat different, for that joint is subjected to strain during labour; if, however, radiological examination shows that there is sound ankylosis, there should be little or no danger. (Active tuberculosis of bones or joints has an evil reputation in obstetrics, for often the disease is spurred into great activity and the patient sometimes succumbs to a miliary tuberculosis. This happened, for example, in the case of a patient who became pregnant some five years after a bone-graft operation for spinal caries.)

The second part of the question can be answered with more certainty. If the disease occurred before the pelvis reached adult size considerable asymmetry may develop; in the case of sacro-iliac disease, the symphysis pubis is pushed over to the sound side. On ordinary radiological examination these appearances may seem alarming, but in spite of the lop-sided look the dimensions may still be adequate and the pelvis retain a good obstetric value. Stereoscopic *x*-ray examination will give a better mental picture of the true size and form of the pelvis. Speaking generally, there need be no departure from ordinary obstetric practice with regard to delivery. The usual ante-natal examination for determining the presence of pelvi-foetal disproportion will, of course, be carefully performed.

The risk of tuberculosis to the offspring is remote; in this respect the outlook is more favourable than it is in the case of a mother suffering from pulmonary tuberculosis.

INCOME TAX

War Work Here by Irish Resident

G. M. J.'s home is in Ireland; he had retired but is in the United Kingdom doing war work. His wife continues to live in Ireland.

*** In such circumstances G. M. J. will be regarded as having a residence in both countries—i.e., one here and one which is available to him, whether in fact he uses it or not, in Ireland. He is, therefore, legally taxable by both countries, but under the statutory arrangements between them is entitled to the special relief provided for "double residents." The basis of this relief is that each country gives relief at one-half of the lower of the taxpayer's appropriate rates. For further information, and for any form which may have to be completed, G. M. J. should refer to his inspector of taxes.

LETTERS, NOTES, ETC.

Infant Feeding

DR. WINIFRED M. THOMPSON (Onitsha, S. Nigeria) writes: I have just received the *Journal* of Dec. 12, 1942, and have read with interest Mrs. Nancy Salaman's letter on loneliness in infancy (p. 708). May I be permitted at this late date to make some comments? Mrs. Salaman expresses the wish that mothers would get back to what she calls "natural impulse" rather than be tied to the clock in the question of infant feeding. She gives the impression that in her opinion babies should be fed whenever the mother thinks that the baby's cries mean that it is hungry. Earlier in her letter Mrs. Salaman says that it often requires some experience to tell just why the baby is crying. If the mother is encouraged to feed her baby whenever she thinks that it is hungry, it will result in her feeding the baby whenever she cannot find any other obvious cause for the crying. Naturally the baby will not object, for all babies like to be picked up, and they do not mind having small feeds whenever they feel like it. Here in Nigeria the native women follow their "natural impulse" and feed their babies at any time. The result is deplorable. The babies are unhealthy and overfed, and they cry if their slightest wish is frustrated. Is it to this that Mrs. Salaman wishes us all to return? A normal baby will readily go three or four hours without food during the day and eight hours at night. If the baby is hungry before the next feed is due, surely the remedy is to increase his feeds. A baby responds to a regular routine, and is far more contented in consequence. Not only is it better for the baby, but it gives the mother a better chance to do all the work which she has to do and to take adequate rest, a point of the utmost importance.